

FORT SUMTER NATIONAL MONUMENT
COLLECTION MANAGEMENT PLAN



Fort Sumter Garrison Flag

Accession # FOSU 00008

Southeast Regional Office
Cultural Resource Division, Museum Services
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EXECUTIVE SUMMARY

This Collection Management Plan is the result of a park site visit by the Sara Van Beck from November 18-21, 1998, and is designed to serve as a review of the park's museum program. The plan was requested by the park and funded through Museum Collection Preservation and Protection funds for FY1997. However, due to schedule conflicts the visit was not scheduled until FY1998. Park staff who assisted on this site visit were Museum Specialist Deborah Osterberg, Maintenance Mechanic David Richardson, Administrative Officer Sherry Webster, Chief of Resource Management Tom Murphy, and Superintendent John Tucker. The Museum Specialist has since transferred to another park, but references to her work remain here as reflective of park conditions at the time of the site visit. The accreditation of the park by the American Associations of Museums in 1993 demonstrates that this is a well-supported and well-respected museum program. Re-accreditation site visit occurred in November 2002 with re-accreditation expected in April 2003. Cultural Resources Program Manager, Sandy Pusey was hired in October 1999 and was responsible for the collections until FY2002. William Townsend, Facility Management Specialist, will be responsible for the collections starting in FY2003.

In December of 2002, the FOSU CMP had still not been finalized, due in large part to turnovers in staff at the Southeast Regional Office who were responsible for completing the plan. Southeast Regional Staff Curator Paul Rogers met with FOSU Cultural Resource Program Manager Sandy Pusey, Facility Management Specialist William Townsend, and Park Historian Rick Hatcher. As the original FOSU CMP was written in 1998 there were several changes that had occurred at the park over the course of this four-year span. Instead of re-writing the FOSU CMP, the team decided to leave the original comments in place as they document the history of the museum collections at the park. However, where situations or conditions have changed since the 1998 draft, we added the current conditions in italics at the end of the paragraph.

The park has benefited from a number of surveys evaluating aspects of the museum program and providing program guidance. Further, these survey documents serve as justifications for receiving funding support from National Park Service (NPS) funding sources. A Collection Condition Survey (CCS) was conducted in 1993; the park has used this to prioritize and carry forth many object conservation treatments. The CMP and CCS should be used together as justifications for acquiring funding for improving the park's current deficiencies. A Fire and Security Survey was conducted in 1994, and it too can be used to justify funding requests. Of great benefit to the park is the recent completion of a new collection storage facility (completed in 1996) at Charles Pinckney National Historic Site, which is administered by Fort Sumter National Monument. The facility further serves as the collection repository for materials from Moores Creek National Battlefield and Charles Pinckney NHS.

The most pressing problems for the park's museum program are insufficient staff time, and a number of actively deteriorating large objects, especially cannon tubes and their carriages. Park staff are acutely aware of the problems facing the museum collection and have been working methodically to correct them. Many deficiencies noted in this CMP have been well-documented on the 1996 National Park Service Special Directive 80-1 Inspection Checklist for Museum Storage and Exhibit Spaces (or 1996 Inspection Checklist) and can be rectified with increases in allocated staff time and some funding support. In order for a park to obtain funding for museum issues via the Museum Collection Preservation and Protection Program (MCPPP), all deficiencies to be corrected must be accurately represented in the 80-1 Inspection Checklist. Funding for conservation treatments should be sought through Cyclic Maintenance funds, Friends groups, or Cultural Resources Protection Program (CRPP) funds. Museum Collection Preservation and Protection Program funds are not to be used for conservation work.

Scope of Collection Statement

This document is currently under revision; two recommendations made here are to delineate the park's existing archives and an archives collecting policy, and to wait for the resolution of the University of South Carolina's archeological collection disposition before completing the document.

Museum Records

Park staff have embarked on the very time-consuming process of correcting all catalog cards (over 7000), completing all Accession folder documentation and reviewing all Accession Book entries. The documentary photographing of the collection was begun but has not been completed, and a formal park archives needs to be established.

Storage of Collections

The new facility completed in 1996 is of a well-planned design. Issues still facing park staff are fine-tuning the building's climate control, and providing sufficient storage space for artillery shells, a park archives.

Exhibits

Past problems with the exhibits in Fort Sumter have been mostly rectified, except for the over lighting of objects and rain-driven water leaks. Fort Moultrie Visitor Center was completed renovated in 1999 and new exhibits are in the process of being installed as funding becomes available, which is expected to be completed in 2003. Some of the issues surrounding the furnished room exhibits in the Harbor Entrance Control Post (HECP) are currently being addressed, but a comprehensive review of interpretation of the site may be desired.

Museum Environment

While ultraviolet levels are within acceptable limits, most, if not all, objects on display at Fort Sumter are overlit with visible light; a light monitoring plan and its strict adherence are necessary to maintain light levels that will not hasten the destruction of the objects. This is very critical for the survival of the Palmetto and Storm/33 Star flags. A detailed humidity monitoring program is needed for the metals storage room, to determine if high humidity microclimates are present. Many storage and exhibit locations are not comprehensively monitored for temperature and relative humidity; more recording equipment is needed. Formal Integrated Pest Management (IPM) training is needed for park staff.

Museum Security and Fire Protection

Important improvements have been made in the security and fire protection of many museum spaces in the park, although some areas are still under protected. Greater key control, more security system zoning, and fire detection and suppression for the HECP are the more pressing needs. A curatorial hurricane response and salvage plan was revised in 2002 but fire and earthquake components are needed. A new security system is needed in the Fort Moultrie visitor center, funding was not available during the 1999 renovation.

Planning and Staffing

A full-time curatorial position is greatly needed due to the scattered locations of the museum collection and volume of work to be accomplished. Allocating another curatorial 0.5 FTE to the existing curatorial/interpretation position will make the position full-time, and allow the current 0.5 FTE to be returned

to Interpretation for a more effective use of that FTE. The museum and archives collections should be considered in all future planning documents. A Long-Range Interpretive Plan is recommended for the HECP.

CHAPTER 1

INTRODUCTION AND HISTORY OF THE COLLECTION

A Collection Management Plan (CMP) is a specialized planning document designed to assist a park in the operation of its museum program. To this end, the CMP seeks to document the current management of a park's collection and provide specific recommendations for the improvement of the park's museum program over a three to five year period. In Director's Order #28, Cultural Resource Management (DO-28), a CMP "...provides short-term and long-term guidance... in the management and care of museum objects and archival and manuscript collections" (Chap. 9, p. 155).

Fort Sumter National Monument (FOSU) was established by Congressional legislation on July 12, 1948, to commemorate the inception of the Civil War. With the addition of Fort Moultrie in 1960, the history of American coastal defense became part of the responsibility of Fort Sumter National Monument. This followed efforts by the NPS and local individuals in Charleston's preservation circles, the Historical Commission of Charleston, and the Charleston Chamber of Commerce, starting in the 1930's, to gain control of Forts Sumter and Moultrie from the War Department in order to create a historic site. After the military installations were proven antiquated by the modern warfare of World War II, the Army announced that the forts were to be surplused in 1947. Congressional legislation was immediately introduced to transfer Fort Sumter to the NPS; this was accomplished in 1948. Fort Moultrie, however, was transferred to the State of South Carolina. The State left the site vacant for 13 years, until its transfer to the NPS in 1960. Fort Moultrie has no establishing legislation.

Under the NPS, one of the early changes to Fort Sumter was a major restoration effort from 1948 through 1955. Dilapidated structures were razed and removed, repairs were made to remaining structures, and excavations were conducted to reveal original fort structures under rubble and sand. Some photographs were taken of these efforts, and reports documenting the work for accounting purposes were generated. Another early change under the NPS was an increased emphasis on interpreting the Civil War battle and its associated impacts for the benefit of the visiting public. A museum exhibit area was installed in Battery Isaac Huger, which had been constructed inside Fort Sumter during the Spanish-American War in 1898, and walking tour interpretive markers were installed. Interpretive plans and published material for the public were also generated. The interpretive theme of American coastal Seacoast defense from the American Revolution through World War II was promulgated by the 1974 Master Plan.

The War Department administered the site of Fort Moultrie as a military installation from the current fort's completion in 1809 until shortly after the end of World War II (1947); the first Fort Moultrie was built in 1776 as a coastal defense for Charleston against the British during the Revolutionary War. This early structure was hastily constructed from palmetto logs and thus quickly rotted away; a second, more substantial fort was built in 1798 and lasted until leveled by a hurricane in 1804. Fort Moultrie III was completed in 1809, and like Fort Sumter, later military installations were constructed within Fort Moultrie's up through the World War II period. In 1944, the Harbor Entrance Control Post, or HECP, was completed as part of the defense system for Charleston Harbor. Prior to the HECP, Edicott Batteries were constructed within the fort.

These early forts have been the focus of archeological research and investigation. Much of the park's museum collection has been generated by archeological explorations of Forts Moultrie I, II and III, and Fort Sumter. The early "excavations" or clearings of Forts Sumter and Moultrie III were done without much accompanying documentation, either for the accessioning of objects into the collection, or lists of artifacts recovered and associated project documenting records. Reports with photographs were generated. Many of the archeological artifacts recovered from park lands generated by research projects and resource management project clearance

are at the NPS Southeast Archeological Center (SEAC). Modern archeological projects have been conducted primarily by SEAC and have focused on Fort Moultrie I and II. One other “modern” excavation was conducted by Dr. Stanley South of the University of South Carolina’s (U.S.C.) Institute of Archaeology in 1974, in an effort to locate Fort Moultrie I; these artifacts were returned to the park in February 2001 after being stored at the University of South Carolina. The artifacts are now cataloged and are stored at the Charles Pinckney NHS Curatorial facility. Park staff are of the opinion that the size of the collections generated by archeological explorations at Charles Pinckney NHS (CHPI) are so great as to preclude recalling all them for storage at the park. The bulk of these collections will remain at SEAC.

The first exhibits installed in the newly established park were in Battery Huger. These exhibits included an array of artifacts, which were subjected to the adverse conditions of high humidity, salt air and inadequate temperature control. Unfortunately, the rare and important flags flown over the fort for the Union (the 33 Star or Storm flag and the Garrison flag) and the Confederacy (the Palmetto flag), were displayed in these conditions beginning in 1955. Special exhibit cases were constructed for the Storm flag and Palmetto flags in 1989 and were placed on display in Fort Sumter/Battery Huger. These were modified in 1990 by Harpers Ferry Center after Hurricane Hugo by the addition of humidification/dehumidification systems to insure climate control for these important and fragile textiles. The Garrison flag was conserved and its own special display case constructed in 1997; this is now exhibited at the newly completed Fort Sumter National Monument Visitor Education Center at Liberty Square.

The park has had long-standing troubles with relative humidity, in terms of leaking roofs, lack of adequate climate control (Fort Sumter, HECP), invasive water during storms (Fort Sumter and the HECP) and humidity control in the new curatorial storage facility. Correcting these problems has been a long struggle for the park; most should be rectified by the end of FY2003.

Artifact storage history for the park is rather lengthy. At inception of the park, the collection was stored at Fort Sumter in Battery Huger. According to the Superintendent, sometime before 1977, the collection was moved to Fort Moultrie / HECP with the large items remaining at Fort Sumter. Around 1979, the collection was moved into a small room in the new Fort Moultrie Visitor Center, completed in 1976. Unfortunately, the roof leaked in the room. Large items which would not fit in this room still remained at Fort Sumter. Later, two rooms in an unfinished World War II concrete gun battery, referred to simply as Construction 230 (or C230), in 1991, were converted for museum storage and the collection was moved again. One room was partially finished, with gypsum walls, a wood floor and drop tile ceiling added; an air conditioning and ventilation system was installed to provide climate control, although the humidity was difficult to control. Two self-draining dehumidifiers were then installed to stabilize the relative humidity. The bulk of the collection was located in this room. The second room was unfinished (concrete walls, floor and ceiling) and became the metals room for artillery projectiles and associated metal artifacts. Again the relative humidity levels were uncontrollable, too high to arrest corrosion of the artifacts, there was little temperature control, and the room was full of cockroaches and other insects. Nearby maintenance supplies were a fire hazard, and the building was located in a flood plain. The relative humidity was so high that the 1993 CCS suggested not only a dehumidifier, but a mold filter on the HVAC system as well. Two dehumidifiers were subsequently installed, which stabilized the relative humidity at 45%.

Upon the completion of the curatorial storage facility at Charles Pinckney NHS in 1996, all the museum collection was relocated from C230 using volunteer help from the Marines EOD, with a few exceptions. Assistance from the Marines was solicited to ensure the safety of all the artillery to be relocated. Because of the availability of the Marines, the time available, and the concern for safety, there was insufficient time during the move to inspect all artillery pieces for insects and egg cases before placing the objects in the new facility. It was determined that trapping for pests leaving the new cool, dry facility for warmer and wetter surroundings would be sufficient. At present, the old curatorial storage room in C230 is used for paper storage

and retired park records, and a few cannon carriage sections and a damaged table from the HECP exhibits are still stored in the back with other wood supplies. The damaged table was disposed of in 2001.

Artifact treatment at the park began with the first excavation in 1953 and continued with the major excavation of 1959-1960 through 1969. From the 1969 report "Report on Preservation Procedure of Iron Artifacts," by John Dobrovolsky and Vincent J. Halvorson: "To be sure, much of the material was duplicated and not particularly useful. Some of it was thrown over the wall along with the excavated soil, but in desperation most of it was buried under the Fort Sumter museum and sealed up. There still remained several tons of metal artifacts for preservation, however, desired for outstanding exhibits, cherished as rare specimens, or valued for their association with the Monument story. Early attempts at preservation were limited to mechanical cleaning. The rust was knocked off. Sometimes apparently a coat of metal paint was put on to inhibit future rusting. In later years rustoleum or polyurethane coatings were applied. "...Traditional efforts at preservation have been to remove as much of the surface salt and moisture as possible and then seal the salt in and the air out with an impervious coating." This report documents the historians' construction of an electrolytic reduction tank for treating metal artifacts not treated by the Branch of Museum Operations and discusses the coatings then applied. However, with the high relative humidity uncontrolled, treated metal objects were soon corroding again because of the damp environments. Again the metals were treated with microcrystalline wax in the late 1970's, and again because of the storage conditions the artifacts began to corrode. This issue was discussed in the 1993 CCS and is one of the issues that led to the construction of the new storage facility which incorporated designated storage and treatment rooms for metal objects.

On September 21, 1989, the Charleston area was hit by Hurricane Hugo. Although power was restored to Fort Moultrie and the HECP in a timely fashion and the stored collections escaped unscathed, power was not restored to Fort Sumter and Battery Huger for many months. Compounding matters, the roof to Battery Huger developed two leaks after the hurricane. Some organic objects molded, the flags began to deform, and metal objects were corroding. Once power returned, the independent microclimate dehumidification systems were installed in the flag cases. Monitoring of flag cases indicates an adequate microclimate. A new HVAC unit for the museum was installed in 1989 and then replaced again in 2001. New baseline temperature and relative humidity levels need to be established.

In 1993, the park contracted for air sampling, to determine the source of unknown odors in the Fort Moultrie storage room. Fumes detected included hydrocarbon vapors from creosoted timbers in the Shell Room in C230, and conditions conducive for mold and mildew growth were noted in non-curatorial spaces in both Forts Sumter and Moultrie. The creosote timbers were moved to the wood storage area to reduce staff exposure. These were sections of a gun platform removed from the northwest bastion of Fort Moultrie in 1975. Sometime thereafter, park staff in concert with the SER Regional Curator created a sample collection of the materials because of space limitations. Only sections illustrating the joint construction of the platform were retained; drawings of the pieces were made at the time.

As noted above, the HVAC unit for Fort Sumter and Battery Huger was updated in 1989, in 1994, and again in 2001, to improve system efficiency and accommodate exhibit area modifications. This time the system was divided into 3 units, rather than one, using more salt resistant components. The HECP is also in need of improved climate control; this has not yet been scheduled.

Many of the accessions for the collection are for single objects or a few items donated or transferred from other federal locations (NPS units, military installations, etc.). However, the bulk of the collection is from materials obtained from park lands, namely archeology projects and early fort excavations. Per the FY1995 Collection Management Report (CMR), approximately 19,013 objects from FOSU and FOMO are under the park's care. Additionally, 21,228 archeological objects and 3,467 associated archival objects from archeological projects conducted on park land are housed at SEAC. On exhibit are 704 objects. As of FY1996, there were three outgoing loans comprised of 4,124 objects. Objects from Charles Pinckney NHS

stored in the park's storage facility include 150 archeological objects, 6 history objects and 5 archival objects, and Moores Creek N.B. has 40 objects stored at the facility. Housed at the University of South Carolina (USC) is a large archeological collection excavated by Dr. Stanley South in 1974 from the early Fort Moultrie I. This collection is estimated to comprise 25,000 to 50,000 artifacts and approximately two and a half linear feet of associated records; the collection has since been accounted for in the updated FY1998 CMR. The park wishes to recall this material from USC for permanent curation. This CMP will be concerned with materials located at the park and with issues surrounding the USC-Stanley South collection, but not with materials housed at SEAC. The backlogged catalog materials from the USC Stanley South collection have been cataloged returned to the park and are housed at the Charles Pinckney NHS curatorial storage facility and have been accounted for in the 2002 CMR.

CHAPTER 2

SCOPE OF COLLECTION STATEMENT

The purpose of the Scope of Collection Statement (SOCS), as stated in DO-28, Cultural Resources Management, is to provide the basic curatorial planning document. It guides the park in the acquisition and preservation of those objects used in the interpretation of the park's stated themes, as well as those objects the park is legally mandated to preserve. It is prepared as an independent document, and is based on the park's enabling legislation, additional relevant legislation, and other park planning documents.

A SOCS defines the purpose of the museum collection; sets agreed upon limits that specify the subject matter, geographical location and time periods to be covered by the collection; states what types of objects will be acquired to fulfill the purpose of the park's museum collection; and briefly outlines policies and procedures for the acquisition, preservation and use of museum collections. The statement must be reviewed every two years and be revised whenever conditions change which clearly alter the mission of the park. (See NPS *Museum Handbook*, Part I, Chapter 2, "Scope of Museum Collections.")

By legal mandate and in accordance with established policies and procedures, NPS permits and encourages the acquisition of museum objects through field collecting, gift, loan, exchange, or purchase, when these objects are clearly significant to a park.

The park's SOCS is currently under revision by park staff; this is represented by Resource Management Plan (RMP) project statement FOSU-C-057, priority 21. The SOCS incorporates the potential for natural history collections resulting from future scientific studies and contains a long discussion of the history of archeological excavations at the park. Also discussed is the status of recalling the University of South Carolina - Stanley South archeological collection and that collection's storage conditions. The plan discusses the necessity of building architectural sample collections to document past construction techniques and materials as future reference for maintenance and rehabilitation. It further mentions the park's archival holdings but does not identify gaps in the collection or delineate priorities for an archives collecting policy. The SOC is currently being updated and the final version will be available in FY2003.

Recommendations

1. The SOCS needs to identify gaps in the park's archival collections and prioritize an archives collecting policy. This includes park generated materials, such as copies of Superintendent's reports and publications; original associated records from all archeological, historical and natural history studies and reports (park or contract generated) such as field notes and maps; reports on stabilization and preservation efforts; historic base maps; and materials associated with cultural resource issues such as fort foundation studies. Refer to the *Museum Handbook*, Part II, Appendix D, "Museum Archives and Manuscript Collections," and the *Museum Handbook*, Part I, Chapter 2, p.13-20 for further guidance. **On-going; one year.**

CHAPTER 3

MUSEUM RECORDS

A park's museum collection consists of physical objects and specimens and associated documentation. Documentation includes collection management information about acquisition and legal custody, accountability and inventory, physical and condition descriptions, as well as associated and derived data relating to the park's natural history and cultural collections. Documentation facilitates physical and intellectual access to museum objects for purposes of collection management, research, interpretation and exhibition.

Current NPS museum record keeping standards and procedures are provided in the *Museum Handbook*, Part II. The *Automated National Catalog System User Manual* provides further information on the NPS museum record keeping system. By following procedures outlined in these manuals, a park can ensure that adequate museum records for the collections are in place. Additional guidelines and standards for record keeping are listed in: *NPS Management Policies 2001*; the *Museum Handbook*, Part I; Director's Order #19: Records Management; Director's Order #24: NPS Museum Collections Management; Director's Order #28: Cultural Resources Management; NPS-77, *Natural Resources Management Guideline*; 36 CFR 2.5g; and 36 CFR Part 79, *Curation of Federally-Owned and Administered Archeological Collections*.

Accession Book

The Accession Book is kept in the curatorial storage facility's office in a locked fire-resistive file cabinet. The ledger used is the original NPS Accession Book issued to the park, not the new acid-free book now issued (Form 10-256). A photocopy of the FOSU and CHPI Accession Books need to be made on acid free paper and kept in central files.

Over time, a number of individuals have made entries into the Accession Book, and much of the required information is not present or not in the required format. A wide array of pen types have been used. Corrections were performed by crossing out the incorrect data with a single line; however, there are no dates nor initials for these corrections.

Early records (primarily Acc.s 1-121) in the Accession Book need substantial amounts of data to bring them up to NPS standards. These pertain primarily to the early excavations of Fort Sumter and to "Major Brook," and are entered with little to no explanation. The dates are entered as "Before 1967," and little information is present in the Received From, How Acquired or Remarks columns. Data inside the Accession Folders, as discussed below, is even less complete.

For many accessions, the dates are often entered with just the month and year, or the year alone. Some accessions have no date at all (Acc.s 423, 425, 426, 427). Other accessions (Acc.s 508, 509) have "Unknown" entered for both the Date Received and Received From columns, although other information is provided. Catalog numbers are entered; some have been lined through but not accounted for elsewhere or explained as to why the lining through occurred (Acc.s 243, 467, 468, for catalog numbers 3454, 5505 and 5506), or are out of sequence. Most accessions generated by SEAC archeological projects have the SEAC Accession number noted, except for FOSU Acc. 712. The "How Received" column is blank for a few accessions (Acc.s 684, 688, 689).

Accessions for the HECP exhibits, Acc.s 556-561 and Acc. 572, are of mixed accession types (transfers, gifts, etc.) and are from various sources; they were procured by Harpers Ferry Center and accessioned by the park in

April 1980. The note in the Accession Book states “See individual catalog cards” for clarification as to where each object came from (“Various Sources”) by what method it was obtained (“Assorted Sources”).

The Museum Specialist has recently embarked on a lengthy Documentation project to update, correct and provide accession and catalog information for all accessions and catalog entries. She has started with the review and updating of registration data for catalog entries and will tackle the review of accession data in early 1998, *on hold*.

The rare books in the Library collection have been accessioned into the museum collection. Several Library texts have been placed in curatorial boxes for protection.

Nine boxes of unaccessioned archeological material are stored in the curatorial storage facility treatment room; these materials were recovered during excavations of Fort Moultrie I and II. These materials are from an important period in the history of the park, and should be accessioned and cataloged. Further, there are sawn sections of a wood gun platform removed from Fort Moultrie in 1975 that have not been accessioned into the collection. These pieces were retained to form a sample collection and need to be evaluated to establish their importance to the park and handled accordingly.

Accession Folders

The Accession Folders are also stored in the curatorial office in a locked fire-resistive file cabinet. Accession Folders 1-445 are in the old acidic folders; Accessions 446-745 are in the new acid-free folders.

Unfortunately, many of the Accession Folders lack any kind of documentation, particularly Acc.s 1-121.

Much of the early “excavations” conducted to clear Fort Sumter of debris were accessioned and cataloged, but no associated documentation was ever included in the museum collection. The only “document” present is a piece of acidic lined paper, with the accession number and catalog number(s) noted in pencil. Many early donations and transfers also lack appropriate documentation. Unfortunately, this documentation is the legal proof of ownership of the objects by the park. To rectify this situation, the Museum Specialist has been systematically trying to locate any and all documents in older park central files that pertain to any museum object, including Transfers of Property forms and letters of donation and acceptance. To date, she has only photocopied these documents, placing the photocopies in the Accession Folders and leaving the originals wherever she found them in park files. However, the original with its original signatures is required for legal standing. According to the *Museum Handbook*, Part II, Chapter 2, “Accessioning,” p. 2-4 thru 2-22, as legal proof of ownership, the signed originals of these documents must be housed in the Accession Folders. If a document pertains to objects in more than one accession, the original document should be placed in the earliest accession, and copies placed in all others with a pencil notation indicating the original is in the first accession.

The Museum Specialist is continuing this effort of locating original documentation and completing the Accession Receiving Reports (Form 10-95) and Accession Receiving Report List of Objects (Form 10-95a) for all accessions as needed as part of the Documentation project. The records housed in C230 have not yet been reviewed. This project has been on hold since the museum specialist left the park in 1998.

Very few documents in the Accession Folders have been marked in pencil with the Accession Number, which is recommended for security purposes in the *Museum Handbook*, Part II, Chapter 2. Some Accession Folders are also very overfilled, and materials pertaining to individual catalog numbers need to be moved to a Catalog Folder. Catalog Folders have been established for the most important artifacts in the collection that have received much attention over the years, namely the Garrison flag, 33 Star/Storm flag and Palmetto flag, but these Accession Folders are still over filled. None of the Accession Folders with more than a few sheets have been properly folded at the bottoms of the folders to allow for all the documents to be stored properly. This has led to some documents being creased or folded. Further, many documents have been stapled or paper clipped; the high relative humidity of past storage locations has caused many to clip rust, leaving rust stains

on the pages and adjacent pages. Many of the older documents are yellowing and becoming brittle because of the acids in the paper and adjacent paper; this is particularly true of the early lined paper recording the accession and catalog numbers, and early thermofax copy paper which is very light sensitive. Also present are yellow “Post-it Notes;” these should also be removed (and never used) because of the damaging effects of the adhesive.

Some park staff have voiced interest in establishing a park archives. This is addressed more fully in the Storage of Collections chapter below. If and when such a project begins, the park should work in concert with the contractor to assure that each collection determined by the contractor is accessioned as a complete whole and catalog numbers are assigned to provide an appropriate level of control and intellectual access to each collection. This cataloging may be done as a “lot” cataloging, with a single number assigned to each collection accessioned. Or, individual series within a collection may receive an individual catalog number. Rare objects, such as books in the Library, may be individually cataloged within a collection if there is concern regarding loss or theft. These should also then be considered as “controlled items” and so inventoried annually by the Curator during the museum property Annual Inventory.

Catalog Records

The catalog records are stored in a locking fire-resistive file cabinet in the curatorial storage facility office/workroom. The disks and backup tapes of the catalog entries into Automated National Catalog System (ANCS) are stored in a fire-resistive file drawer insert in a locking fire-resistive file cabinet. However, the file cabinet is not raised up off the floor as a flooding precaution.

Most of the catalog records are complete, but the older entries often have inaccurate or incomplete information. Incorrect data includes object location (since the move to the new curatorial storage facility), inaccurate classification (History instead of Archives for manuscripts), inaccurate or non-conforming object names, non-conforming descriptions, inaccurate or non-existing object measurements, etc. Reviewing and verifying the data is part of the Museum Specialist’s Documentation project for all 7847 catalog entries. To this end, the museum specialist began with the first object in the first accession, and was checking all information on the catalog cards against the actual object, searching park files for legal documentation. This project has been suspended since 1998 when the museum specialist transferred to another park.

The park should review the *Museum Handbook*, Part II, Appendix D, “Museum Archives and Manuscript Collections,” for specific guidance for the correct method of cataloging archival and manuscript collections. One collection of particular concern is the Major Thomas Benton Brooks manuscript collection, consisting of over 400 journals, letters and drawings. Brooks was a Federal Engineer stationed on Morris Island in 1863. The entire collection was donated by a Brooks descendant to the Washington office of the NPS, which then transferred the collection to the old NPS Region One office in Richmond, Va. Staff in the Regional Office then broke up the collection, sending those documents pertaining to specific parks to those parks. Fort Sumter received the bulk of the collection, with Fort Pulaski N.M. and Castillo de San Marcos N.M. also receiving some items. For reasons unknown, the regional office staff mailed the Fort Sumter collection in sections; the only documentation for all these transactions is one cover letter dated 1952. Park staff accessioned and cataloged the documents as they were received, fractioning the collection. Further, the documents were cataloged as History objects, not as Archives. All original provenance and order, as a consequence, has been lost by this piece-mealing. The park wishes to track down more information, if available, about the collection from other park files and from Forts Pulaski and Castillo de San Marcos. It is recommended that the manuscript collection and associated documentation records be consolidated, treated as a manuscript collection and not individual history objects, and the cataloging procedures in Appendix D be followed. The new cataloging program which is to replace ANCS, ANCS+, should allow for the individual manuscripts to retain their originally assigned individual accession and catalog numbers. The first catalog number assigned to the

collection should be re-cataloged into the ANCS+ archives module, and then all other catalog cards modified to refer to this one number as an “umbrella” catalog number.

The park wishes to recall all archeological objects out on loan to other institutions or in storage at SEAC which pertain to Fort Sumter and Fort Moultrie.

Loans, Exchanges, Gifts

Many of the items received on loan over the years have been returned to the loaning institution, and have been so noted in the Accession Ledger. However, Incoming Loan Agreement forms (Form 10-98) were not always used in the past; looking for documentation for these transactions is part of the Museum Specialist's Documentation project. Exchange documentation forms (Form 10-643) are also missing from early accessions. Early donations do not have a Deed of Gift Form (Form 10-830), only correspondence and signed letters indicating (or acknowledging) a gift, if the Museum Specialist was able to locate the documents.

Other Records

As noted above, some Catalog Folders have been established for the more important or often treated objects in the collection. More folders should be established as warranted by the volume of records in an Accession Folder. A Source of Accession File is present for the museum collection; the folders are acid-free. A photograph file for objects and artifacts has been initiated; the majority of stored objects, including archival materials, have been photographed. This was accomplished with help from a volunteer, and took quite some time to complete. No objects on exhibit nor the projectile collection have been photographed; the Museum Specialist estimates that the total number of objects to be photographed is between 2,000 and 3,000. The photographing of the collection is strongly recommended in the 1993 CCS as a means of tracking the deterioration of objects, as well as providing a general record of objects for security purposes. Park museum collections photo documentation needs to be updated and completed.

Recommendations

1. As part of the Documentation project, update and correct entries in the Accession Book. Bring all entries up to current NPS standards; make all corrections neat and legible; add all necessary information as best can be ascertained. If no data can be gathered for a particular entry (particularly the “How Acquired” data), this should be stated. Refer to the *Museum Handbook*, Part II, Chapter 2, p. 2-24 for guidance. **One to two years.**
2. As part of the Documentation project, update and complete the necessary legal forms for all Accession Folders. These include creating the required Accession Receiving Report and List of Object Forms (10-95 and 10-95a), completing loan forms (Form 10-98), creating Deed of Gift forms, removing unnecessary materials to the Catalog Folders, and removing all paper clips, rusting staples and post-it notes (transcribe important information in pencil first). In pencil, add the Accession Number to all documents. Replace early acidic Accession Folders with newer, acid-free folders, or use acid-free insert folders. To legally prove ownership, all original transfer and loan documentation located in other park files must be placed in the Accession Folders, and copies left in the park files, with explanatory notes (dated and signed). Refer to the *Museum Handbook*, Part II, Chapter 2, pages 2-29 through 2-32 for guidance. **One to two years.**
3. As part of the Documentation project, update the location, preservation treatment, maintenance and other information on catalog cards missing such data. Continue to update the catalog cards with correct data, conforming to ANCS standards. This project, in conjunction with the updating and correcting of all Accession Book entries and Accession Folder documents, will be a tedious process. Request more volunteer assistance, if interested individuals can be located. **One to two years.**

4. Replace existing Catalog Folders with acid-free folders. Update and create more Catalog Folders as necessary to contain materials currently housed in the Accession Folders. Items that can be relocated to the Catalog Folders include research reports, appraisals, object treatment documents, etc. Refer to the *Museum Handbook*, Part II, Chapter 2, p. 2-29 and Chapter 3, p. 3-41 for further guidance. **One to two years.**
5. Create loan documentation as necessary for the USC-Stanley South collection, and update the Collection Management Report and 1996 Inspection Checklist as warranted. Since the site visit, the CMR has been updated, an RMP project statement cataloging the collection was generated (FOSU-C-074, priority 4), and funding was allocated for this project. **Completed with the exception of verification of loan documentation.**
6. Accession rare books and project reports currently in the Library collection into the museum collection for added security. This may be done during an Archives project. Other rare objects may be cataloged individually (instead of by lot as are other document collections), again for greater security, if deemed necessary by park staff. Refer to *Conserve O Grams* 19/1, "What Makes A Book Rare?" and 19/2, "Care and Security of Rare Books." **Completed.**
7. Complete the object photograph file using the Visual Inventory Card Form 10-30. Refer to the *Museum Handbook*, Part II, Chapter 2, p. 2:32, Chapter 3 Section G, and Appendix L for further guidance. This will also assist in documenting the deterioration of artifacts (refer to the 1993 CCS). Continue to request funding for a collection photographing project via CRPP and RMP project statements. **One to three years.**
8. Condense the Thomas Benton Brooks (manuscript) Collection into one accession, retaining original catalog numbers, and consolidate the storage of the collection. Correct the cataloging of all items from "History" to "Archives." Refer to *Museum Handbook*, Part II, Appendix D, "Museum Archives and Manuscript Collections," for further assistance. **One year.**
9. Raise the file cabinet housing the catalog cards off of the floor, by at least four inches as a flooding precaution. **One year.**
10. Accession and catalog, by project, the nine boxes of archeological artifacts currently stored in the curatorial storage facility office. All data pertaining to the two early Fort Moultries needs proper analysis and curation. This collection should be added to the Collection Management Report. **One to two years.**
11. Review the Fort Moultrie gun platform pieces stored in C230 for inclusion in the museum collection. If they fit the park's SOCS and support the park's interpretive story, they should be accessioned and cataloged. Staff may wish to consider retaining only a sample collection, thoroughly documenting the remaining pieces before disposition. This should include full measurements and comprehensive photographic documentation (panoramic and specific detail photographs). All existing drawings of the sections should be incorporated into the documentation. **One year.**

CHAPTER 4

STORAGE OF COLLECTIONS

All objects within the museum collection that are not on exhibit should be stored such that they are protected from environmental hazards, biological threats, and theft. The storage requirements for park museum collections, archival and manuscript collections and library collections are all very similar. These requirements involve keeping collections within acceptable temperature and humidity levels, with controlled levels of light, free from biological pests, and in dedicated areas protected from loss due to fire or theft. These basic requirements have been defined by the National Park Service, and have been set forth in the following laws, policies and standards:

- . *Museum Properties Management Act of 1955* (16 USC S.18)
- . *Curation of Federally-Owned and Administered Archaeological Collections* (36 CFR Part 79)
- . *Research Specimens* (36 CFR Section 2.6, revised April 30, 1984; currently under revision)
- . *Department of Interior Checklist for Preservation, Protection and Documentation of Museum Property*
- . *NPS Management Policies 2001* (Chapter 5)
- . *NPS Museum Handbook* (Parts I, II and III)
- . NPS Special Directive 80-1 “Inspection Checklist for Museum Storage and Exhibit Spaces”

Objects are stored in the curatorial storage facility at CHPI and in C230. Exhibited museum objects are located at Fort Sumter and Battery Huger, the HECP, Battery Jasper, Fort Moultrie, Fort Moultrie Visitor Center, Visitor Education Center at Liberty Square and the main house at the Charles Pinckney NHS. Most of the collections are located in the storage facility. A few gun carriage sections are still housed in C230. Inactive park files are located in C230.

The Curatorial Storage Facility

The new storage facility was completed in 1996; the site chosen is located away from the coast and is out of the 100 year flood plain. The building consists of seven rooms and a long hallway: a restroom, an office/work room, a janitorial equipment room, an utility equipment room (accessed by an outside door and unconnected to the rest of the facility), a treatment room through which access is gained to a metals storage room, and a mixed objects storage room. The building is concrete masonry unit (CMU) construction on a poured concrete pad, designed to withstand hurricane force 125 mph winds. The CMUs are tied together with concrete bands and furred on the outside and inside; moisture barriers and insulation are included on all surfaces. It has taken some time to stabilize the climate control of the facility; some fine tunings still need to be made and are addressed below in the Museum Environment chapter. The structure and interior rooms are kept locked, with the lights off, and a security system is in place. There is fire detection equipment hardwired into the intrusion detection system, and so monitored. A dry pipe fire suppression system has been installed.

The treatment room is equipped with a flammables storage cabinet for future use of sodium hydroxide (used in electrolysis treatment of salt water affected metals), a microwave for re-heating silica gel used in the flag case dehumidification systems, and a large locker type freezer for storing photographic film, paper and possible storage of nitrate negatives or freezing of water-logged books. When the facility was constructed, no ventilation system was installed in the room to vent the water vapor and other gasses emitted during electrolysis. This was due to unresolved issues concerning the park's electrolysis program. Until a ventilation system is installed, if electrolysis is to be done, less harmful but slower acting sodium carbonate must be used. Issues surrounding the electrolysis treatment of the large eleven Parrott rifled guns and their metal carriages on display at Fort Sumter is discussed below in "Exhibits."

Storage furniture in the metals room consists of angle iron shelving units with plywood shelves and a few museum specimen cabinets for smaller metal objects. Large artillery shells are placed directly on the concrete floor without use of a barrier material. None of the shelving is raised more than four inches above the floor, and none of the objects on open shelving or on the floor have dust covers. The room is not completely sealed from the adjacent electrolysis room, as there is a 1/16 inch gap under the door. When the collection was moved from the roach infested shell room in C230 to the new facility, there was insufficient time to inspect and remove insects and/or insect egg cases. Over time, the number of roaches in the room have fallen based upon the number of insects trapped. There is no work space or table, and some objects are still stored in cardboard boxes awaiting the construction of more storage shelving.

The Main storage room, designed for all other collection materials, is at the opposite end of the structure from the treatment and metals rooms. All the museum cabinets are raised off the floor 28 inches; large wardrobe cabinets are raised only four inches. The museum cabinets are raised so high due to potential hurricane flooding and as a pest deterrent. The current salvage plan calls for all collections, including incoming loans, to be simply locked and left. Angle iron shelving is used for large objects; the lowest shelf is not used as a flooding precaution. None of the open shelving is covered with dust covers. Most of the smaller objects in the cabinets are cavity packed, and all drawers are lined with ethafoam. Most objects are stored in cabinets by material type. Many cabinets have object location inventory information on the outside of the cabinets in hanging plastic enclosures. The textiles require more padding to prevent creasing of the fabric, and need to be better dispersed (across more drawers) to lessen the weight loads on bottom items. Relative humidity monitoring cards and sticky pest traps are placed in the textile wardrobe cabinets.

Museum cabinets are also located in the curatorial office, housing curatorial supplies, collection objects in need of further provenience research, and materials selected for the core of a park architectural sample collection. Also present in the office are two fire-resistive file cabinets containing museum documentation, a sink, the HVAC air return, work tables, a computer, three locked gun cabinets, and nine cardboard boxes of faunal remains (animal bones) and nine boxes of archeological artifacts from excavations of early Fort Moultrie (I and II). The cabinet drawers housing problematic collection objects have not yet been lined with ethafoam.

According to the 1996 Inspection Checklist, the collections storage area is used for more than the storage of collections, and the curatorial office and research areas are not separated from the collection storage area. Flammable materials, curatorial forms and interpretive materials are not housed separately from the collection. Further, the collection space is inadequately insulated, and not well organized to allow for easy access to the stored objects. To this end, the Inspection Checklist notes the need for a large quantity of storage equipment and the rehabilitation or replacement of existing specimen cabinets. Cabinets are also listed as not being raised sufficiently off of the floor as a flooding precaution.

Much of this has been corrected with the new curatorial storage facility; cabinets are raised, a flammables cabinet has been acquired, insulation is present, and the collection is well organized. More storage furniture is needed for artillery objects in the metals room (in progress at the time of the site visit), some older cabinets are

still not in ideal condition, and rearrangement will be necessary to provide for the archeological collections to be returned. The Inspection Checklist should be revised to reflect the current status of the park's storage conditions and submitted for use in funding allocations.

The desire of the park to retrieve archeological collections housed at SEAC poses some storage issues for the park. The current layout of the storage room may need modification the collections will need to be stored in the curatorial office. Park staff should obtain exact storage dimensions of the collections as they are currently housed at SEAC and determine if sufficient space can be allocated in the storage room or if the curatorial office will have to be used. This information should be readily available from SEAC. Further, space must be allocated for the associated project documentation generated by these projects, which will accompany the artifacts. This may afford an opportune time to establish a formal park archives collection. Since the site visit, the USC- Stanley South collection has been measured and it requires approximately 300 square feet.

Safe storage of hazardous nitrate negatives is listed as a need on the 1996 Inspection Checklist. The park is participating in SEAC's nitrate negative storage project; it is anticipated that this will provide for the professional reproduction and storage of the park's hazardous negatives. Although the park plans to participate in the project, park staff should re-review the collection for the presence of acetate negatives. The hidden danger with acetate, or "safety" film, is that the film deteriorates with little to no outward visible signs of degradation (unlike nitrates). The film continues to deteriorate undetected, until a "critical mass" of acids are freed by the degradation process that the image emulsion suddenly and dramatically separates from the supporting film base creating a furrowed or trough effect, rendering the negative unreproducible. In general, due to the age of parks' photographic collections, much of any early park's negatives are likely on safety or acetate film, and so are at high risk for deterioration. These should be removed and placed in cool, low humidity storage immediately before they become too far gone to reproduce (at least cheaply). The park has volunteered to serve as a cold storage repository for nearby parks with small collections of nitrate negatives; the furnishing of sufficient refrigerators has not yet been addressed.

Park staff have indicated the desire to establish an archives for the park. An archives serves not only as a repository for donated manuscripts of historical figures relevant to the park's story, but also as the source for all documents pertaining to the history of the park itself. This includes research project reports and associated records such as field notes, administrative materials (such as copies of the superintendent's reports), the history of interpretation at the park (including copies of park publications), and the history of cultural and natural resource management decisions. Important materials for the park's archives are located in a number of areas, primarily the old curatorial room in C230, but also in the offices of park staff. Previously, retired park records were stored in an unconditioned storage space in the Fort Moultrie Visitor Center.

The new Administrative Officer has been organizing the park's central files, and is planning to review all materials in the current park files for appropriate disposition. She intends to involve the park Historian in this project. The Museum Specialist should also be involved in the review, as well as the Chief of Resource Management and someone representing Interpretation. These staff members should form the nucleus of a records disposition board, to review all records before formal disposition by the Administrative Officer. Records and copies of records falling into these categories, retrieved associated records from park archeological projects and the Thomas Benton Brooks collection, will afford the opportunity for the park to establish an archives. Park staff should refer to the *Museum Handbook*, Part II, Appendix D, "Museum Archives and Manuscript Collections" for assistance in establishing an archives. For ready reference some selections of applicable regulations have been included below in Appendix V. An abbreviated description of document boxes and their contents located in C230 is provided in Appendix VI.

Battery Jasper and Construction 230

As noted above, sawn sections of a gun platform removed from the northwest bastion of Fort Moultrie in 1975 are currently stored with other wood supplies in a maintenance storage room in C230. The room is cool, damp and dark, with ample air circulation. These sections were to form a sample collection representing the platform's joints and the remaining pieces, located at Battery Jasper, were to be disposed of. The creation of this sample collection was made in consultation with the former Regional Curator. The platform pieces were treated with creosote at some point; some of these sample collection pieces have been sawed into sections thereby exposing non-treated ends to the elements. Concerns for the health of park staff because of the creosote fumes have prevented evaluation of the pieces. The pieces were not included in the space requirement calculations when the new storage facility was constructed; room for them in the new facility is limited at best.

While the storage is secure in C230 for general park dead storage, the conditions are less than ideal for an archives, as has been suggested by park staff. The current recommendations for storage conditions for paper materials is 66-68°F and 30-40% relative humidity. Conditions at the time of the site visit were inadvertently not recorded; past conditions, with two dehumidifiers running, were 72-78° and 40-49%, based on hygrothermograph and datalogger charts. Also, there is no way to guard against pests such as cockroaches and silverfish, as the room is not sealed. Access to the room is available to park maintenance, administrative and ranger staff. Further, an archives is part of the museum collection, is subject to museum collection accountability and the museum property requirements. It is strongly recommended that this space not be considered as an archives repository, and that the collection instead be housed at the curatorial storage facility. The new facility was designed specifically to provide the needed environmental conditions and security befitting an important park resource. In 2000 the C230 storage room was renovated to include a solid concrete floor, new insulated walls and a new HVAC system.

The Library

The park's Library is located in the Fort Moultrie Visitor Center in the old museum storage room. This room is noted for past water leaks from the ceiling; water efflorescence stains are still present on the bricks. The room is lit by fluorescent fixtures and one incandescent fixture; the latter is located very near two book shelves. There are no windows in the room, and climate control is provided by a "window" type air conditioning unit. The room is kept shut and lights off when no one is present. The room did not flood during Hurricane Hugo.

Two volunteers updated the cataloging of the collection into the Library of Congress system; rare and valuable books have been removed from the room to safer storage, and some have been set aside to be incorporated into the museum collection property system. However, many original or rare site-specific history and other reports have not been separated out from the library collection. Not all books are properly shelved; many do not have their spines supported by the shelf (they hang off the shelf edge), which will lead to spine damage from the weight of the books being unevenly supported. Most books were vertical in the shelves (not slumping), which is also important to prevent warping. *Library books are now stored properly.*

The park's photograph collection of 5,050 images (negatives and associated prints) is housed in metal drawers on top of the card catalog. All have been indexed, and most have negatives and prints. All are housed in acidic yellow kraft paper sleeves, and many have glassine inner sleeves. A few photographic prints were found sleeved in together with the negatives. Many envelopes in the drawers are slumping and so warping. Both the kraft paper and glassine are damaging to negatives and prints; at a minimum, the glassine needs to be replaced by new acid-free paper sleeves.

The vertical files for general research are housed in old metal filing cabinets. None of the folders reviewed contained original correspondence, reports or other materials. When the park establishes its archives, the

vertical files should be reviewed and original materials removed for incorporation into the collection. Also, original reports from park resource and history studies should be incorporated into the park archives.

Miscellaneous

In the commons area of the ranger offices in the Fort Moultrie Visitor Center there are a set of map cabinets. These contain copies of historical maps and plans pertaining to Forts Sumter and Moultrie and more recent NPS generated maps and plans for these and other park structures. Many of the NPS generated materials are bluelines; these are very light sensitive, off-gas chemicals harmful to other paper and photographic objects, and are inherently unstable. It is possible that the NPS bluelines are the only copies in existence representing that data; permanent copies of all bluelines need to be obtained and placed in the park archives. Use copies can then be generated from the permanent master copies in the archives, saving the master copies from loss because of overuse.

Recommendations

1. Place all nitrate and acetate film negatives in cool dry storage as a stop-gap measure until they can be processed as part of the SEAC nitrate film project. The negatives pose such a fire and health hazard that they cannot be left in improper storage. Refer to *Conserve O Grams* 14/4, "Caring for Photographs: General Guidelines," and 14/5, "Caring for Photographs: Special Formats." **Immediate.**
2. Remove the light bulb from the incandescent fixture in Library. This supplies unnecessary light, over lights the books below and generates heat. This may be done by the two current volunteers. **Completed.**
3. Properly shelve the books in the library so that all books are vertical and fully supported for the length of the text (no spines hanging off the shelves). This may be accomplished by the two current volunteers. **Completed.**
4. Replace the glassine inner sleeves of the photograph collection. Separate out those photographs stored with negatives into their own proper housing. Support all negatives and print cards so that none slump, to correct the warping. Resurvey the collection for nitrate and acetate negatives and relocate to cool, dry storage. The current Library volunteers could perform the resleeving. **Completed.**
5. Cover the open shelving in the mixed objects storage room and the metals room for dust protection. This may be done either with unbelted muslin sheets, available from *Tools of the Trade*, or with polyethylene sheeting, as discussed in *Conserve O Gram* 4/4, "Creating a Microclimate for Oversized Museum Objects." Using the polyethylene sheeting in conjunction with silica gel can create a microclimate and a pest barrier if sealed, which would be beneficial for large metal items not relocated to the metals room, in addition to better visibility than cloth. **Completed.**
6. Continue to rearrange and pad the textiles and to cavity pack small and fragile objects. Remove the metal objects from the cardboard boxes in the storage room and dispose of the boxes. The glue in the boxes is an insect attractant, particularly for silverfish. The artifacts may be rehoused in polyethylene storage boxes, and should be relocated to the metals room. **One to two years.**
7. In the metals room, finish construction of shelving for artillery objects. Obtain and install a work surface, such as a table, to allow staff to perform written tasks without having to use a storage shelf. Install a door sweep to seal the gap under the door. Place barrier material such as Mylar under all objects placed directly on the concrete floor. **One to two years.**

8. Coat the plywood shelves with a low off-gassing latex paint; new paints meeting the State of California's air pollution standards should be investigated. Coating will prevent off-gassing of chemicals from the plywood; the paint should be fully cured before the shelves are installed. **Completed.**
9. Place ethafoam padding in all museum cabinet drawers housing objects in the office/ workroom. **Completed.**
10. Replace deteriorating storage cabinets currently located in the office, particularly if these will be used for incoming archeological collections. **Two to three years.**
11. Determine the amount of space currently required by the archeological collections and associated documentation at SEAC, and plan where the collections will be housed in the storage facility. Also, determine if map cabinets will be required for housing associated maps for all new collections. **One year.**
12. Evaluate the gun platform pieces stored in C230/Battery Jasper, in terms of retaining only a sample collection as well as storage requirements. The presence and volume of off-gassing creosote vapors needs to be determined; the pieces may need to be isolated from sensitive collection objects such as photographs and textiles and so not relocated to the curatorial storage facility. If the creosote is off-gassing, staff should consider creating a microclimate storage environment for the sections retained as described in *Conserve O Gram* 4/4, "Creating a Microclimate for Oversized Museum Objects," and placing the items in the dead storage room in C230/Battery Jasper. If the creosote is not a problem, store the cataloged pieces in the storage facility. **One to two years.**
13. Because of the efficacy of sodium hydroxide in electrolysis treatment over sodium carbonate, the park should install a ventilation system in the electrolysis room. A fume hood should be installed for handling of sodium hydroxide. However, the small size of the electrolysis tubs should not generate much in the way of fumes to be ventilated, but instead mostly water vapor. Thus, an exhaust fan may be sufficient, coupled with an air intake. The second air intake source would keep the system from pulling air from the metals room and the rest of the structure, interfering with the climate control for those areas. The exhaust fan could run continuously while electrolysis is conducted, and the fume hood reserved for the handling of noxious chemicals such as paints and sodium hydroxide. **One year.**
14. Cover the warped water damaged table in C230 with a muslin cloth for dust protection. Do not use plastic, as this may trap moisture. Consider filing a Case Incident Report for the damage, and deaccessioning if the table is beyond repair. The damage should also be noted on the catalog card, and deaccessioning proceed according to the *Museum Handbook*, Part II, Chapter 6. **Completed.**
15. Establish cold storage for the slides and color film negatives. Those slides that are frequently used should have use copies made and the master copies stored. Slides, being created by light-sensitive dyes, rapidly and permanently fade with light exposure, and this is hastened by high temperatures. This storage need should be addressed during the archives project, as the photographic collection is processed. Again, refer to *Conserve O Grams* 14/4 and 14/5. **Two to three years.**
16. Once the Administrative Officer begins work on reviewing the park's central files, arrange to establish a park archives. Potential sources of archives materials should be surveyed, including C230, the Library (reports and vertical files), and the files of park staff involved with resource management and interpretation. Also, old contracts should be reviewed, as these may provide a history of cultural resource maintenance. Non-fiscal records specifying work accomplished, etc., should be photocopied for inclusion as deemed necessary by park staff.

As the survey is conducted, the amount of material appropriate to an archives should be recorded, so that appropriate storage arrangements can be made. The amount of archeological project records from SEAC and

USC need to be determined for space requirements as well. Approximately 73 inches of original resource related reports in the Library should be considered for the museum collection or archives.

The arrangement, description and cataloging of the archives, once established, could be accomplished by means of a cooperative agreement with one or two graduate student from the University of South Carolina's library program. Students with previous experience should be specified. The Museum Specialist would be responsible for accessioning the collections, and approving the arrangement scheme of the materials (which should be by year accessioned and file code for park generated materials, and by project for research generated materials). Archive collection should be stored in acid-free boxes, and may be placed on open shelves, or in museum cabinets if necessary. **Two to three years.**

17. Review the vertical files for original materials that should be incorporated into the park's archives. This may be accomplished by the two current volunteers, or as part of an archives project. Contact Denver Service Center, Technical Information Center for assistance in obtaining copies of the maintenance bluelines in the ranger's area of the Fort Moultrie Visitor Center. TIC may have copies on file, and so can provide copies on plain paper to the park for the archives. If not, they offer a very reasonable copying service for parks of bluelines onto plain paper. These plain paper copies will be much longer lasting than the light sensitive and chemically degrading bluelines, and copies for permanent retention and use need to go into the park archives. **One to two years.**

18. Plan and program for a Collection Storage Plan. Using *Conserve O Grams* 4/10, "Determining Museum Storage Equipment Needs," and 4/11, "Determining Museum Storage Space Requirements," the Museum Specialist should be able to accomplish this task herself. Insure that all archeological collections are accounted for, as well as the Garrison flag case. **Two to three years.**

19. Update the park's RMP project statements to include a statement for an archives project. Update the park's deficiencies in regard to the new storage facility and other park conditions on the Inspection Checklist and resubmit the Checklist to SESO and WASO for future funding needs. **One year.**

CHAPTER 5

EXHIBITS

A museum collection exists to document and support a park's interpretive resource management program. Museum objects on exhibit provide a visual link between the visitor and the tangible manifestations of the park's cultural or natural themes. Exhibits embellish written accounts and events of history by showing products of that history. Objects in an exhibit are among the "real things" that visitors come to a park to see.

Objects on display are more vulnerable to damage and deterioration than those housed in safe storage. Exhibited items may be vulnerable to damage or theft when placed unprotected in close proximity to visitors. Objects on exhibit are also vulnerable to deterioration if there are not adequate controls against various environmental agents of deterioration, such as light, dust, and fluctuations of temperature and relative humidity. Objects exposed to visitor touching or handling can deteriorate through surface degradation, improper handling, or accidental dropping.

The preservation and conservation needs of objects must be taken into consideration when planning exhibits. Only objects in good, stable condition should be placed on exhibit. Conservation treatment may be necessary to provide for stabilization or special support for fragile objects. Environmentally sensitive objects should be rotated on and off display on a scheduled basis to minimize deterioration. It is essential that interpretive use of an object be in compliance with the policies as stated in *NPS Management Policies 2001* respecting cultural resources, and with the guidelines specified in DO-28, Cultural Resources Management. Consumptive use of any object in the museum collection should be avoided. Any interpretive use that may be perceived as consumptive must be authorized in advance as outlined in NPS-6, *Interpretation and Visitor Services Guideline*.

Fort Moultrie Visitor Center

Exhibits in the Fort Moultrie Visitor Center are comprised of three permanent exhibit cases, individually cased figures depicting military uniforms mounted over the permanent cases, mounted artillery shells at the Visitor's desk, a cannon and carriage in a back area next to the auditorium, an encased diorama, temporary exhibit cases next to the front door, and the headstone of Chief Osceola mounted on the wall next to the diorama. The artillery shells and cannon and carriage are intended to be touched by visitors; the shells are bolted to the desk.

The Fort Moultrie Visitor Center has been suffering with a leaking roof for quite some time now; this is to be replaced in FY1998 with cyclic maintenance funds. Unfortunately, the leaks were impacting the carpeting and the two of the cased military figures as well; the carpet is also to be replaced in FY1998. Two figures were slightly damaged; these have been removed from display and placed in storage. Water did enter a permanent exhibit case once; the water puddled but did not reach any artifacts before it was discovered.

The permanent exhibits were installed in 1976, at the time the building was constructed. Objects are placed directly on the case bottom or on small pedestals, on a dark orange, Formica-like material. Objects are viewed through thick clear plexiglass; one case is cracked at a lower corner. There is little exhibit furniture; one 1830 musket is partially supported by its barrel strap ring. No barrier material (e.g., Mylar) has been placed between the objects and the case floors. Fluorescent tubes are housed in separate cabinets above the objects, the light diffused by translucent plastic. One central case is monitored for temperature and relative humidity. The light housings are not locked or secured in any manner other than their size and unwieldiness. Access to the case interiors and the objects is through the light housing, making their access very cumbersome as well. When the objects are accessed, detritus from the light housings falls into the cases, usually when the light

housings are closed. Spider webs and dead insects were noted in the corner of the left case at the time of the site visit. The area behind the cases, and under the military figures, had not been cleaned for some time, based upon the amount of dust and insect remains.

At the time of the site visit, the temporary exhibit items were primarily photocopies, but two original items, a print and a book, were incorporated. The cases are constructed of glass and metal, and are located close to the glass front doors of the building. The door and window glass is tinted, but the sunlight on the objects is still bright. Both prints and books are very susceptible to light damage. The temporary exhibit case has been relocated away from the doors since the site visit.

A new exhibit plan is in progress to replace the permanent exhibits in the Fort Moultrie Visitor Center, but lack of funds has prohibited implementation. This is covered by RMP project statement FOSU-C-058, priority 7.

The Fort Moultrie Visitor Center was completed renovated in 1999 and new exhibits are currently being installed.

Harbor Entrance Control Post, Fort Moultrie

Comprised of five rooms furnished to reflect their use during World War II and two rooms left in original condition with original equipment, the HECF exhibits are of great visual interest to the casual visitor. The furnishings were obtained by and installed by Harpers Ferry Center in 1980. These rooms are separated from the visitor by a wood and plexiglass barrier or wall, and wood access doors locked by Best padlocks. Being an unattended location, the HECF has been subject to vandalism and theft; also the facility has had water damage problems. The plexiglass and wood barriers have been recently reconstructed for the lower rooms, and are to be reconstructed soon for the upper rooms to combat these problems (see below). Further, the exhibits have climate control problems, and the hallway connecting the lower rooms develops mildew when the air conditioning system is off.

Unfortunately, the interpretive signs for these rooms are old pieces of paper, taped to walls or plexiglass barriers with very yellowed, deteriorated pressure sensitive tape. The intent is to replicate a tour of the base in the 1940s. In general, the signs are poorly placed, either too high for someone in a wheelchair or a younger child to easily read, or in the middle of the viewing area for most adults. Some places where these “signs” have been removed still have tape residue adhered to the paint, or large chips out of the paint where the tape pulled the paint off the wall. The effect is very unpleasant, namely cheap, unprofessional and unkempt, and suffers all the more when compared to the new exhibits at Fort Sumter. An Interpretive Plan was generated circa 1980; unfortunately, this document was not reviewed for this project as it is not on file at SERO. The furnishings plan, “Furnishing Plan for the Fort Moultrie HECF-HDCP Fort Sumter National Monument, South Carolina,” June 1975, by Lee A. Wallace, states only “A barrier at the door of each room, including the Observation Post, will be required if fragile telescopic instruments, radio equipment, and telephones are to be adequately protected. Plans and details for relatively unobtrusive barriers are available from the Branch of Reference Services, Harpers Ferry Center, Harpers Ferry, West Virginia. Labels on the barriers will have a brief explanation of the use of each room.” This one statement leaves much room for interpretation and the replacement of the paper and tape signs with something more permanent and polished would not be contradictory.

An eighth room, the Message Center Room adjacent to and connecting to the furnished Duty Officer’s Room, was originally to be furnished and interpreted. Furnishings for this room are delineated in the Furnishings Plan. Currently the room is used for storage for the Living History program, but a sign is still mounted beside the room’s door. Much of the stored material stored is no longer used by the Living History program and could be removed. If this room is not going to be interpreted, then park staff should consider removing the

sign, or instead explain to visitors the role and function of the room since it is not observable. At the end of the lower level hallway are two un-interpreted rooms; these were the Officer's and Enlisted Men's Latrines, and were originally painted as such on the doors (the signs have since been painted over). For some time in the early 1990's the Officer's Latrine was used for metal artifact electrolysis treatment projects.

Three of the furnished rooms, the Radio Room, the HECF Room and the Duty Officer's Room, are located below ground level; surprisingly these rooms remained dry during Hurricane Hugo. They are all served by the same HVAC system. However, if the air conditioning system goes out and staff forget to switch the system immediately, the hallway connecting the rooms quickly grows mildew. The park intends to install a dual thermostat to correct this problem. The furnished rooms have some security monitoring devices installed, that have been relocated from the old curatorial storage room in C230. The Radio and Duty Officer's Rooms have dehumidifiers, and the Duty Officer's Room also has a large box fan for air circulation. [The dehumidifiers for the rooms have since stopped functioning; box fans have been installed until the equipment is repaired.] Door sweeps have been added as well as air conditioner filters to the door louvers, in order to lessen dirt and dust migrating into the rooms. A square hole has been cut into the wall between the Radio and HECF Rooms, which allows in unconditioned air from an unknown (outside?) source. There are water stains on the walls in the Radio and Duty Officer's Rooms; the Radio Room leak has caused minor damage to the floor tiles. Access to the Duty Officer's Room is from the adjacent Message Center Room, which is used for interpretive and maintenance storage. At the time of the site visit, the Message Center Room was quite dusty and dirty, and a large cobweb crossed the room. The area has since been cleaned; mildew was discovered and treated with bleach and water.

In the three lower rooms, mylar sheeting has been placed under many exhibit objects as barriers between them and whatever material they are resting upon (wood, metal, acidic paper blotters). For some time the park staff had wondered why the objects were constantly shifted off of their mylar sheets; during the site visit it was determined that the vibrations from the original metal security locks/doors, when slammed shut behind visitors, are so severe the objects are continually vibrating off the mylar. Original uniforms in the HECF Room are in need of padding to prevent creases and stress to the fabrics.

The other two furnished rooms, the Signal Room and Observation Rooms, are above ground level, ringed by windows, and have had flooding problems for some time. Much of the water entered from the windows, which have holes from BB shots, but some had come from rain driven under the door frames by wind. Water accumulated in the rooms during heavy rains, up to two inches; prior to 1993, exhibited objects were not removed during these flooded conditions. Resulting water damage to the tile floor is still evident. The park is planning to rebuild the doorways to prevent water entry. Further, the park plans to install HVAC climate control for the HECF two rooms (Signal and Observation Rooms); this is covered by RMP project statement FOSU-C-042, priority 11. At the time of the site visit, these rooms were undergoing lead paint abatement, and so were empty of furnishings except for one wooden mount. The furnishings had been relocated to the lower three furnished rooms; one table, severely water damaged, was relocated to C230. Large masses of dead ants were still present on the Observation Room floor. A dehumidifier installed in the Observation Room has a drain line running into a hole in the floor; no one has any idea where the hole, and so water, goes. An original signal light and metal signal flag box are still in place outside the Signal Room, exposed to the elements, and are in need of conservation attention. Asbestos was removed from the furnace and pipes in 1991, along with PCB contaminated transformers. Due to the lack of staff time to restore the piece, the furnace has since rusted.

The two remaining interpreted rooms are the Power Room and the Coal Bin/Heater Room. Both are on the lower level and contain original industrial equipment. The former is the original generator room, and the latter contains the original coal burning furnace. The room barriers are each a single piece of plexiglass bolted to the door frame, with a gap at the top and bottom for air circulation. The Coal Bin/Heater Room is filthy at best, with insect remains visible among the coal chips, and the equipment looks to be in horrible condition. The

generator is in better repair, and its room is more presentable. Park staff are interested in trying to rehabilitate these large pieces, as well as the signal light and signal box by the Signal Room. However, these objects are not covered by the RMP project statement for object conservation (FOSU-C-055).

Battery Huger and Fort Sumter

New exhibits were contracted for and installed in 1994; this included new text and image panels and gravity mounts for displayed artifacts. Displayed objects that were identified as needing conservation treatment in the 1993 CCS received the necessary treatment before re-installation in the new exhibits.

The new cases are constructed in such a way that access to the objects is difficult. A wooden frame covers the screws for the plexiglass front cover, and access to the light housing is then through the opened object case. While most objects are well mounted on custom made plexiglass supports, the supporting base mounts for rifles and muskets have been fatiguing and breaking under the artifacts. One sidearm was supported by rigged inert plastic tubing at the time of the site visit. The flag cases were custom designed to provide uniform support and protection against pests and dust; each case has its own monitoring devices (checked daily) and dehumidification system to ensure constant relative humidity levels. A SOP has been approved for the maintenance of these cases. The lighting on the flags must be carefully controlled. Increased light levels to suit visitors will permanently damage the fragile textiles. A wax figure diorama of Fort Johnson within a sealed case is showing signs of deterioration, giving the appearance of a white mildew outbreak. Harpers Ferry Center exhibits specialist Toby Raphael was contacted regarding the problem; he determined that the paint over the wax is breaking down, allowing the wax to seep through. There is no current RMP project statement for conserving this work. A new HVAC system was installed in 1989; unfortunately the system was not in use long before Hurricane Hugo hit, and salt water impacted the system. A replacement system comprised of three units is to be installed in FY1998.

Of great concern to park staff is the deteriorating condition of eleven Civil War 100 pounder Parrott rifled guns and their original metal carriages located in an embrasure in Fort Sumter. Park and regional staff have tried to determine the best, most feasible preservation / conservation method(s) to protect and preserve these guns and carriages. Exacerbating the issue is the likely difficulty of removing the guns and carriages from the embrasures. A brief history of these preservation efforts is presented in Appendix III; this was compiled by park ranger Jim Riah. One cannon and carriage is currently sitting in an idled uncovered metal electrolysis tank. Park staff were conserving the cannon and carriage using a single ply membrane rubberized synthetic called "Hypalon" as the tank liner. While the Hypalon is impervious to the electrolysis solution and serves as well as a liner, it was rendered useless once the tank was drained and staff entered the tank to scrape the rust off the metal (the scraped metal was ground into the liner and then punctured the liner). Without a liner, the tank leaks when in use, and so is in violation of its use permit. Staff are investigating alternatives to the Hypalon liner - metal tank method.

There are a number of possible actions the park may take in regard to the guns and carriages. One is to do nothing except surface maintenance and wait for a better technology to conserve the pieces. A second is to somehow remove the guns and carriages from the fragile embrasures and conduct electrolysis treatment on the mainland, at a site to be constructed. Other solutions involve conserving the pieces by conventional electrolysis *in situ*, or conserving only the carriages, which are in poorer condition than the guns. Of these *in situ* options, the first would be to continue to use a metal tank and liner system, but to be more careful when scraping the cannon and carriage so as to not damage the liner and keep reusing the tank and liner, using a wet vac to clean up the scrapings as they are generated. Another is to replace the liner after each soaking (opening the tank, and raising the cannon and carriage to replace the liner), and use a metal tank; or to replace the entire system (tank and liner) for each gun. Alternatively, a fiberglass liner could be fabricated instead of

using a plastic liner, either for the full tank or just the floor of the tank, which would be replaced after one to two cannons (per Paul Johnston, The Smithsonian). The last option involves simply using a mild steel tank, without a liner, with one end re-attachable by bolts and using a U-shaped rubber gasket for water-tightness, with the tank itself serving as the positive anode. Appendix IV contains a discussion of using steel tanks without liners; this is from "Methods of Conserving Underwater Archaeological Material Culture," Donny L. Hamilton, Ph.D., Conservation Files, Anth605, Conservation of Cultural Resources I, Nautical Archaeology Program, Texas A&M University, World Wide Web, URL, <http://nautarch.tamu.edu/class/anth605/file2.htm>, January 1, 1998. (Note: this citation is incorrect; the correct file number is "10.")

Miscellaneous

There are a few objects displayed around the park that staff wish to conserve, but the issue is how to do so. These include the signal lights, signal box, and generators in the HECP, and a possibly pre-World War I General Electric generator at Battery Jasper in a small generator building that is not climate controlled. There is a project statement for the preservation of the generator building (FOSU-C-007, priority 48), but there is no project statement for the conservation of the generator or the other objects. All these objects are large, complex and in fair condition. As most of these objects were manufactured by the General Electric Company, park staff should contact GE's Hall of History for assistance; one of the main missions of the Hall of History is to further the preservation of the technical history and achievements of the company.

Recommendations

1. Add mylar barriers to Fort Moultrie Visitor Center exhibit cases. Contact Harpers Ferry Center for assistance in repositioning or remounting the musket so that it is not supporting itself on the barrel strap ring. **Completed -Exhibit cases are no longer used, new exhibits currently being installed in new cases.**
2. Remove original objects from the temporary exhibit case in the Fort Moultrie Visitor Center and replace with reproductions or photocopies. The direct sunlight, ultraviolet light and rapid change in temperature and humidity caused by the opening of the front doors is detrimental for objects, even if in a case. A policy should be instituted to use only photocopies and reproductions in that case because of its location. **Completed.**
3. Replace the unsightly interpretive signs at the HECP with professional interpretive materials. Remove the yellowed tape residues from the walls, and repair the chipped paint. Contact Harpers Ferry Center for assistance with inexpensive interim alternatives for signs until professional, permanent signs can be obtained. This may necessitate a review of the Historic Furnishings Plan; if so, its review is also recommended. **In progress.**
4. Add more padding to the uniforms hanging in the HECP Room, to prevent creases and stress points in the fibers. Refer to *Conserve O Gram* 4/5, "Storage Techniques for Hanging Garments: Padded Hangers." Block the hole in the wall between the Radio and HECP Rooms. Continue to place mylar barriers between objects in the furnished rooms. **One year.**
5. Mount signs for the general public requesting that visitors not allow the metal portal doors to slam shut. Also install rubber stops in doorways to absorb some of the shock of the doors closing. Not only is the vibration caused by the doors slamming shut not good for the exhibited objects, such as the electronics in the Radio Room, the noise is also hard on visitor's hearing. **One year.**
6. Repair/replace the broken exhibit mounts at Battery Huger/Fort Sumter. Contact Harpers Ferry Center for assistance in designing a more sturdy mounting arrangement for the firearms. Also pursue the offer of assistance from center staff in the restoration of the wax diorama. **Completed.**

7. Discuss with Maintenance methods of how to prevent water from entering around the back door into the Battery Huger museum, to eliminate relative humidity spikes and continued water damage. **Completed.**
8. Of all the electrolysis options reviewed by the author, the most promising for the park's situation with the Parrott guns is to construct reusable tanks, and employ the method of using the tank as an anode. This obviates the need for a liner of any sort, and appears to have a proven track record for its proponent. At the very least, the gun sitting in the almost abandoned tank should have its electrolysis program completed, and this gun may be an opportune "guinea pig" for this alternate method. Park staff are investigating ways to reinitiate the electrolysis program. **In Progress.**
9. Contact General Electric's Hall of History in Schenectady, New York, for technical assistance in preserving the generators and signal lights on display and in storage. It is possible that GE will find the project of great enough interest and of sufficient public relations value that financial assistance may be possible. Further, consider cleaning the Power and Heater Rooms for the preservation of the artifacts. **One year.**
10. Continue to request funds for the installation of new exhibits in the Fort Moultrie Visitor Center. Given current funding levels, this may not be accomplished in the near future. Park staff should consider investigating outside funding sources for support for this project. **In Progress.**
11. Discuss with Interpretation staff at SESO the need for reviewing, and possibly revising, the Historic Furnishings Plan for the HECP. Issues to consider are high light levels in the Observation and Signal Rooms, location and preservation of the signal light and signal flag box, and replacement of the interpretive signs. With improved security and the planned installation of improved climate control, conditions of exhibited objects should be improved. A maintenance and housekeeping section is mandated for each Historic Furnishings Report per DO-28, Chapter 9, "Management of Museum Objects," Section C, "Stewardship." **One to three years.**
12. Park staff should consider the review of the interpretive plans and goals for the HECP. Issues that should be addressed include which rooms to interpret and how to effectively do so (such as the Message Center Room and the mess of the Coal Bin/Heater Room), the replacement of stolen objects, the use of reproductions as a response to adverse environmental conditions in the Observation and Signal Rooms, the continued display of objects outdoors (the flag box and signal light) or sensitive objects to long light exposures (paper objects in the lower furnished rooms), etc. **Two to five years.**

CHAPTER 6

MUSEUM ENVIRONMENT

Deterioration of museum objects commonly results from adverse environmental conditions. Changes in environmental conditions cause a gradual alteration in the molecular structure of the object, as objects continually interact with their surrounding environment. The more unfavorable the environmental conditions, the faster an object will change and deteriorate. The *Museum Handbook*, Part I, discusses environmental agents of deterioration, such as temperature and relative humidity, light, air pollution, and biological agents such as microorganisms, insects and vertebrates. The *Museum Handbook*, Part I, Chapter 4, "Museum Collections Environment," and the NPS *Management Policies 2001* lists the museum collections environment standard as follows:

Museum objects should be housed in safe, stable environment to reduce their rate of deterioration, prolong their life, and minimize their need for conservation treatment. Relative humidity and temperature are monitored on an ongoing basis and controlled to minimize fluctuation over short periods of time and to avoid harmful extremes. Light levels are monitored and recorded (including daily and seasonal variations when daylight is involved). Exposure of museum objects to visible spectrum light must be limited in illumination level and duration. Ultraviolet radiation from daylight and artificial light must be eliminated to the extent possible. Exposure to infrared radiation (heat) from natural and artificial lighting sources must be controlled. Regularly scheduled inspections for evidence of insect and other biological infestations must be carried out. Museum storage and exhibit areas are free of as much particulate matter and gaseous pollutants as is practical.

Refer to the NPS *Conserve O Gram* series and the *Museum Handbook*, Part I, for guidance and procedures in the preservation and handling of the park's museum collection. Park staff should also refer to the 1995 CCS for identifying museum objects in need of conservation attention and specific storage requirements.

Light Monitoring

As documented on the park's 1996 Inspection Checklist, there is a light monitoring program in place in the park, yet the need for light monitoring equipment is also noted. Past light monitoring was accomplished with a light meter and a borrowed ultraviolet light meter; the Museum Specialist plans to borrow a UV monitoring device for the park in FY1998. This need for a UV meter falls under RMP Project Statement FOSU-C-033, priority 19, for curatorial equipment. The last light levels monitored in the park were approximately 18 months ago, but were not comprehensive in coverage.

Results of monitoring done during the CMP site visit are included in Appendix I. Visible light was recorded in lux; acceptable light level ranges for types of object materials are listed in the *Museum Handbook*, Part I, Chapter 4, "Museum Collections Environment," p. 4-39, in both lux and lumens. Maximum recommended visible light levels for any object on display is 200 lux; during the site visit, levels as high as 4603 lux were recorded for some objects. Light sensitive materials, such as textiles, leathers, prints and drawings are not to be illuminated over 50 lux; less sensitive materials such as oil paintings and finished wooden objects have a recommended maximum illumination level of 200 lux. Metals, stone, ceramics and glass may be illuminated as brightly as 300 lux. The maximum ultraviolet light level recommended for museums is 75 $\mu\text{W/L}$ (watts per lumen).

Due to the complicated construction of the exhibit cases for both Fort Sumter and the Fort Moultrie Visitor Centers, readings were not taken inside the cases. The Museum Specialist intends to perform a comprehensive

light monitoring of all exhibit areas during FY1998 and will monitor inside the cases at this time. The Museum Specialist has been concerned that burned out light bulbs are not replaced with appropriate low wattage fixtures, and so wishes to explore this issue as well. As noted above, the park does not possess an ultraviolet light meter, so the ultraviolet light readings presented here may be referred to during the planned monitoring. The park should consider borrowing an ultraviolet light meter on an annual basis to check the efficacy of its ultraviolet filtering sleeves on the fluorescent fixtures.

As mentioned above, all objects at Fort Sumter are overlit. The light levels on the flags were lowered drastically via the rheostat by the author and the Museum Specialist, and some fixtures were also redirected away from the Palmetto flag. Initial readings for the Palmetto flag were 3,333 lux on the left side and 2,880 lux on the right; with redirecting the spot lights the levels were reduced to 2,880 and 1,180 lux, respectively. After dimming the lights at the control panel, levels were reduced to approximately 800 lux. Initial readings for the 33 Star or Storm flag was 2,160 lux at half way up the case. After the lights were dimmed by rheostat the levels were reduced to 700 lux on the left side and 900 lux on the right. Recommended maximum light levels for fragile and important textiles such as these is 50 lux; the end levels achieved are still 18 times the recommended limit.

Interior lighting of the exhibit cases is obviously too bright, supported by the over lighting of uncased artillery objects (3,029 lux for the friction primers), the Major Anderson's traveling desk monitored outside of its free-standing pedestal case (2,139 lux), and the over lighting of the comparatively dimly lit flags. The overall lighting for the museum should be lowered, and the spotlighting of objects decreased or removed all together. With the general light levels lowered, visitors' eyes will be adjusted to view the properly dimly lit flags, and to the other objects and text panels. To ascertain the proper light levels, a comprehensive monitoring of all light levels in the museum needs to be accomplished. Then the ambient lights can be dimmed accordingly and a lighting plan or standard operating procedure (SOP) developed and rigorously implemented. A museum professional specializing in museum lighting should be consulted for the plan or SOP.

Again, due to the difficulties in accessing objects in the exhibit cases, those objects on display at the Fort Moultrie Visitor Center were not monitored. The fluorescent tubes were sleeved in ultraviolet absorbing filters, but there is no ventilation to mitigate heat buildup from the lights. These objects are not as brightly lit as those at Fort Sumter, and many are not as light sensitive either (ceramics versus leather). However, the organic materials in the personal items, such as wood and bone handles, are likely overlit. A light monitoring program should be implemented for these objects as well, if only to check the efficacy of the ultraviolet filters. Also, as discussed above, the temporary cases are exposed to sunlight and ultraviolet light when the front doors are opened, and so no original items should be used. Both front and back glass doors to the Fort Moultrie Visitor Center have tinted film installed for blocking visible sunlight and reducing heat buildup.

Light levels in the curatorial storage facility were somewhat high, particularly for the office, although no ultraviolet light was measured anywhere. As these lights are off most of the time in the storage rooms it is not considered detrimental. Park staff may wish to consider lowering the light levels in the office, such as by removing some lamps from the fluorescent fixtures, when work with objects is to be carried out in that room.

Light levels in the HECF rooms varied greatly, with the Observation and Signal Rooms being the brightest and the Power and Heater Rooms being the dimmest. The windows for the Observation and Signal Rooms have ultraviolet blocking film, but it is not tinted to block visible light as this would dramatically alter the interpretation of the room(s). The plexiglass in the doorways does not filter ultraviolet light. Because of the amount of visible sunlight these rooms receive, up to 762,869 lux, the furnishings plan should be reviewed to determine if changes need to be made, such as replacing original materials with more expendable reproductions, etc.

Lighting in the lower furnished rooms is provided by 60 watt incandescent bulbs; no ultraviolet light was recorded for these rooms. The Duty Officer's Room was the most brightly lit of the furnished rooms, with readings of 4,765 and 4,953 lux recorded. All rooms are overlit; however, this may be unavoidable because of the depth of viewing required. Regardless, levels should be lowered as much as possible. If the Historic Furnishings Plan is reviewed, this issue should be addressed.

Temperature and Relative Humidity

According to the *Museum Handbook*, Part I, Chapter 4, "Museum Collections Environment," p.4-13, "Rapid fluctuations of relative humidity may cause deterioration. Diurnal (24 hour) fluctuations cause the most serious deterioration. Changes in water content result in dimensional changes in hygroscopic materials. They swell or contract, constantly adjusting to the environment until the rate or magnitude of change is too great and deterioration occurs. This may be in imperceptible increments, becoming noticeable only over a long period of time."

Temperature and relative humidity readings were taken during the site visit with a battery operated psychrometer. Three readings were taken per location; the average reading for each location is reported in Appendix 1, as well as readings from park digital monitors, gauges and hygrothermographs where available. The difference between measurements by the battery operated psychrometer and measurements by the park's equipment may in part be due to differences in locations of readings. One dial gauge of questionable accuracy, located in the metals room, was discarded by the Museum Specialist after multiple comparative readings against the psychrometer and other park equipment.

Due to a lack of recording equipment, the Museum Specialist must rely on a large number of electronic thermo-hygrometers which show the current temperature and relative humidity, and, if used correctly, can record the highs and lows for both temperature and relative humidity since the last reading. If the equipment were checked and re-set daily, daily highs and lows could be determined. Even if used in this fashion, daily fluctuations, frequency, time of occurrence, etc., are not recorded. Unfortunately, the Museum Specialist does not have the time nor schedule to check all sites daily, and so even the daily highs and lows for these spaces are only recorded in general terms. Further, there are insufficient thermo-hygrometers to perform this basic monitoring in all museum spaces (at the time of the site visit, there was no monitoring of the Duty Officer's Room), and moreover, the Museum Specialist has not had sufficient time to annotate charts with explanations of recorded anomalies. Dataloggers are in some of the most critical areas of the park, but more are needed to provide baseline data of all spaces. The need for more climate recording equipment such as dataloggers is noted as a need on the 1996 Inspection Checklist.

The 1993 CCS states that the biggest problem facing the park in terms of protecting its collections is the lack of control over the relative humidity in the spaces holding museum objects. Conditions have improved, particularly with the new curatorial storage facility; however, conditions are still not optimum in the HECP, the Fort Moultrie Visitor Center exhibit area and C230.

As discussed above, problems with HVAC operation in the lower rooms of the HECP lead to rampant mold and mildew growth in the hallway. Similar problems occur if the staff is not diligent with switching over the HVAC from heating to cooling, or vice versa, in the spring or fall. Often the Museum Specialist has had to rely on Maintenance staff to change the HVAC system. Park staff have noted problems with low relative humidity, such as during the CMP site visit, if the dehumidifiers in the lower furnished rooms were left on after a winter cold front passed through the area bringing dry air. RMP Project Statement FOSU-C-042, priority 11, is for climate control for all levels of the HECP. The need for an HVAC system is also listed on the 1996 Inspection Checklist.

As discussed above, there is a hole in the wall between the Radio and HECP rooms. A draft was quite noticeable from this opening at the time of the site visit. Slight temperature gradients from one end of the room to the other was noted for both the HECP and Radio Rooms. If this opening is necessary from an interpretation standpoint, it should be sealed within the wall structure to block incoming air and possible pests. Conditions during the site visit for the Radio Room were 67-69°F and 38-40% relative humidity, for the HECP Room were 70-71° and 37-38% relative humidity, and for the Duty Officer's Room were 70° and 37% relative humidity. The Message Center Room was at 66°, suggesting unevenness in the current HVAC system, or the effects of incandescent lights heating the closed rooms.

Climate control in the upper HECP rooms in the past has been very difficult, as the exhibit rooms leaked water and the relative humidity was uncontrollable. Since then, the park has removed exhibit objects and is attempting to control the water problem. An RMP project statement has been submitted for reconstructing the doorways to prevent water entering the rooms. It is hoped installation of climate control will mitigate the relative humidity swings.

In 1996, the Fort Moultrie Visitor Center HVAC system was extensively repaired; the cooling tower was replaced and one air handler was overhauled. A second air handler was overhauled in 1997. In FY1998, the HVAC system is to be replaced, and the leaky Fort Moultrie Visitor Center roof and carpeting is to be replaced by a cyclic maintenance project. Climate control in the Library is provided by a window type unit that blows partially onto the vertical file cabinet, the old catalog cards and the book case containing park research reports. This room is cooler than the rest of the building, but there is no relative humidity control other than this unit. Recommended environmental conditions for a library are 68°F and 45-50% relative humidity.

Climate control in the Fort Sumter museum is currently provided by one large HVAC system; the park wishes to replace this system with three smaller units with more salt corrosion resistant parts. SESO Engineer and HVAC system specialist Steve Sherwood recommended in a September 1997 trip report that the Fort Sumter system is a more critical need and should be replaced before the Fort Moultrie Visitor Center system. Conditions in the museum at the time of the site visit were 69°F and 56% relative humidity on a partly cloudy cool day. The museum can fluctuate between 40% and 80% relative humidity, depending upon the season, the number of visitors in the space, and how often the exterior doors are opened.

The museum has other climate control problems. During rains, water is driven under the back exit door into the room; carpet and wall damage is very evident. This causes spikes in relative humidity. Another recurrent problem causing spikes in relative humidity, and temperature, is when the museum is at its carrying capacity due to tour boat visitors all cramming into the museum, especially during bad weather. The current tour boat capacity is approximately 385 persons, which is very likely more than what the museum's safe carrying capacity. A capacity study is planned for the tour boat operations; it is strongly suggested that the impact of large numbers of visitors on the museum be considered in the scope of the study.

The Palmetto and 33 Star/Storm flags have self-contained relative humidity maintenance systems connected to their cases; at the time of the site visit the Museum Specialist was determining how to install a datalogger remote probe into the Palmetto flag's case similar to the one installed for the 33 Star/Storm flag's case. This system has functioned well in maintaining a stable environment for these fragile objects (66-68°F and 54-56% relative humidity).

The new curatorial storage facility at CHPI has three HVAC heat pump units, one for each storage room and a third for the electrolysis room, hallway and office. Obtaining proper climate control has been problematic, particularly attaining the target 35% relative humidity for the metals room. Park staff feel that the infiltration of moisture from outside sources, such as the electrical outlet boxes, has been mitigated, but they are continuing to monitor and run tests with the existing system to try to lower the relative humidity further. Conditions in the metals room at the time of the site visit varied from day to day, likely reflecting the ambient

outdoor relative humidity. Psychrometer readings varied from 32-33% and 69-70°F on one day to 67° and 36% relative humidity the next, and by park equipment 35% and 68°. On the second day a measurement was taken in an air pocket close to artifacts; the readings were 67° and 39% relative humidity. With a 39% relative humidity reading recorded, it is recommended that a monitoring program testing different areas in the room be initiated. It is possible that some areas along the periphery of the room are not receiving as much air circulation from the HVAC unit, and so may have higher relative humidity.

Conditions measured in the mixed objects storage room were 67° to 69°F and 42% to 44% relative humidity, depending upon location; and in the work room at 69° and 45% relative humidity. Conditions measured in the electrolysis room were 60° and 50% relative humidity. The thermostat for the office was set at 70° and reading 70°, while the readings for the electrolysis room and hallway were 60°. These three areas are on the same HVAC system, but the air return and dehumidifiers are in the office. It is possible that because the doors to the electrolysis room and office are always shut, the proper air circulation necessary for even temperature control is not present. While leaving the doors open to the hallway would facilitate the functioning of the HVAC system, the compartmentalization of the rooms is beneficial for fire and security safety.

Since the site visit, temperature and relative humidity alarms have been set and programmed into the building's alarm system. Settings chosen for the metals room were 50% and 75°, and 70% and 75° for the storage room. If any of these readings are sensed by the system, an alarm will be initiated. It is suggested that a lower setting of 60% relative humidity for the storage room be programmed in, mainly as a mold and mildew precaution (see below), and 45% for the metals room.

Relative humidity indicator cards have been placed in the museum cabinets with textiles, but dehumidifying silica gel has not been placed in cabinets containing metal artifacts. The indicator cards are difficult to read and are calibrated in 5% increments. To the best of our ability, the author and Museum Specialist determined the relative humidity to be 35% in the textile cases examined. Recommended relative humidity levels in the *Museum Handbook, Part I*, Appendix K, "Care of Textile Objects," are 50% to 55%. Lower humidity levels can cause excessive brittleness and fiber fracturing, and higher humidity promotes microbial growth. A datalogger has been placed in one of the two gun cabinets in the office, to ascertain the stability of the environment. If the relative humidity is consistently or spikes low, silica gel conditioned to 50-55% should be added. A datalogger should be placed in one of the textile cabinets to accurately determine the storage conditions.

In the spring of 1998 (since the site visit), the curatorial storage facility suffered a widespread mold outbreak. The Museum Specialist returned from an extended leave of absence to find mold in both storage rooms. The outbreak occurred on the ceilings and on the walls above the level of the HVAC units. Mold was also found on the gaskets of the museum cabinets, but not inside the cabinets. Diluted chlorine bleach was used to kill the mold.

For mold spores to activate and grow requires a relative humidity level of 60% or higher. Further, as the outbreak occurred in areas of low air circulation, it implies that the rooms' relative humidity levels rose to unacceptable levels, and only sufficient air movement kept the spores from activating in all areas of the rooms. Raising the HVAC units on the walls will increase air circulation, thus mitigating future mold outbreaks. Resetting the relative humidity alarms to lower set points will also help mitigate against future mold outbreaks. Installing HEPA filters on the HVAC units should lower the actual number of mold spores in the rooms. However, these correction measures do not address why the outbreak occurred in the first place. It is unknown if the HVAC units were turned off, thereby allowing the relative humidity levels to rise unacceptably high, or if the relative humidity rose for other undetermined reason(s). The rise in relative humidity from 35% to 60% or higher in the metals room does strongly suggest that rooms are not sealed against moisture infiltration. If the rooms were truly sealed, a 25% or better rise in relative humidity would not have occurred during a period

of staff inactivity. Park staff need to take comprehensive measures to determine the origin(s) of the moisture infiltration, and then seal the rooms as necessary.

Integrated Pest Management

Smoking, eating, drinking and live plants are prohibited in all locations where museum objects are located, as well as in the Library. There are no restrictions for C230. A structural pest inspection was conducted by the South Carolina Department of Pesticide Regulation, through Clemson University, for the HECP, Fort Sumter and Fort Moultrie in 1996, but not for the curatorial storage facility. Case-making clothes moths were noted as abundant in Fort Moultrie, and woolen historic uniforms on exhibit were observed to be infested and damaged by clothes moths.

According to the 1996 Inspection Checklist, museum spaces are monitored monthly for pests and mold and mildew. However, there is no park-wide comprehensive Integrated Pest Management (IPM) program. The Museum Specialist has just recently (FY1997) taken over the responsibility as IPM Coordinator for the park, as there was no one in this position and she wished to resolve IPM issues with the museum collection. She does not have any formal training for this position; further, because of her past work schedule, the Museum Specialist has not been able to regularly check all pest traps, nor formulated a comprehensive monitoring program for museum areas. Pest monitoring is done in the curatorial storage facility, but not in the Fort Moultrie Visitor Center exhibits area, Library, HECP, Fort Sumter, or C230. When the metals collection was relocated to the new facility, there was insufficient time to check the objects for roaches, egg casings, etc., and so staff have been concerned that pests were transported to the new facility.

In the curatorial storage facility, sticky traps are placed in appropriate locations along walls and doorways, and the location is noted on the traps, but the date of placement is not. Traps are also located around textile cabinets in the storage room. The Museum Specialist indicated that she has not had time to check traps more than once every three to four weeks in the past, but hopes to initiate a weekly checking program. A general list of insects trapped is maintained, but not a specific inventory of what and how many; staff have also had some troubles identifying all insects trapped. Many traps examined during the site visit were dusty, indicating the trap should be replaced due to reduced effectiveness. Large quantities of boric acid have been placed near all doorways, except for the back equipment room. The Museum Specialist intends to obtain a professional duster or atomizer for applying boric acid.

Park staff have found that since many spiders set up residence outside the main door to the storage facility during the summer of 1997, the quantity of insects inside the building has dropped noticeably. Consequently, staff do not remove spiders or webs outside the building. Old spider webs should be removed, however, as old webs are preferred egg-laying locations for some carpet beetles, and the hatched insects could then move into the collections building.

A wide array of insects were present in the electrolysis room and hallway during the site visit. Insects noted at the time of the site visit include for the metals room two pill bugs and one millipede; for the electrolysis room a spider, millipedes, pill bugs, a mosquito, one cricket and two water bugs; in the hallway roaches, silverfish, pill bugs, millipedes, spiders, and red bugs. The textile traps were empty. With the relative humidity for the metals room maintained at a low level, this will encourage pests to leave for wetter climates, but this may be just to the other end of the hall, and may be part of the insect load trapped in the electrolysis room and hallway. While the roaches may enter one at a time from the tops of the doors, the silverfish and waterbugs are more endemic and difficult to eradicate. Since the cold winter weather has set in, no pests have been trapped inside the facility.

In the warmer months, staff have noted that the number of silverfish trapped varies with location. The greatest number appear in the hallway outside the exterior doors, with fewer trapped outside the storage room doors

and inside the storage room, and only on occasion a silverfish appearing in the electrolysis room. Silverfish in particular are very damaging to paper collections. It is suggested that once the weather warms up and insects reappear, close attention be paid weekly to the number of silverfish trapped in each location, to determine if there is an infestation and its scope. Also, the gaskets to the exterior doors should be examined to determine if there are gaps allowing insects to enter.

While no dead insects were noted in the museum at Fort Sumter, a number of insect casings were noted behind the exhibit cases at Fort Moultrie. These included pill bugs and a large number of unidentifiable and dusty desiccated remains. No pests were noted inside the cases; the light housings were not examined due to the difficulty of opening the cabinetry. Inside one of the permanent cases in a corner, as noted above, was a spider web and unidentifiable insect remains. One evening during the site visit a large cricket died under the cannon by the auditorium. In the administrative area, a live roach was found in the conference room and another in the Museum Specialist's documents. No insects were noted in the Library.

Monitoring at HECF is sporadic, dependent upon the Museum Specialist's work schedule. As noted above, masses of dead ants were all over the floors of the Observation Room, and the Observation, Signal, Message Center, Heater and Power Rooms were full of bugs and spiders. Fewer insects were noted in the Radio, HECF and Duty Officer's Rooms; pest traps were present. Door sweeps were installed and HVAC filters were added to the door louvers to keep out dust and insects. As stated above, the opening between the Radio and HECF Rooms should be sealed as a precaution against pests. The Museum Specialist intends to initiate regular monitoring of the furnished rooms in FY1998. [Resource monitoring is provided by Resource Management and Visitor Services staff and volunteers since the transfer of the Museum Specialist.]

C230 is not sealed against insects, and dead roaches were noted in the room. There is no effort to monitor this room as no collections are presently stored here. As discussed above, the old Shell Room in C230 was notorious for its roaches.

Housekeeping

On the 1996 Inspection Checklist, the park states that curatorial areas are inadequately controlled for dust and dust covers are not in place on open shelving in the storage area. The lack of dusting and vacuuming in some areas was readily apparent during the site visit. The park has two vacuums with high efficiency particle (HEPA) filters, which are moved about the park as needed.

The present Housekeeping Program, referred to as a Preventive Conservation Guide, was written in 1991, but park staff has no time to carry out the prescribed duties and tasks. The plan has not been reviewed since it was written, and so has not been revised as necessary to reflect changes in the park's storage and exhibit conditions. It discusses fire and security systems, water and electric utilities and locations, and visitor use of existing spaces. Yet the plan is insufficient in a number of areas, and cleaning information in general is scant. Further, there is no discussion of pest trap placement, checking or recording methods, signs of pest infestations, and important areas to check regularly. The Museum Specialist is planning to update this plan as her schedule permits; this has been accomplished since the site visit.

Housekeeping (particularly dusting) is a contentious issue for the exhibits areas as the cases are difficult to open at Fort Sumter and those at Fort Moultrie shed materials every time the case is closed. Fort Sumter exhibits are dusted and vacuumed approximately three times a year. Resource Management staff cleans the front of the cases for fingerprints, etc. Dead insects and dust behind the Fort Moultrie Visitor Center exhibit cases were exposed after the cases were pulled away from the wall because of water leaks. These newly exposed areas should have been cleaned by Maintenance as part of general cleaning. A thorough vacuuming with a vacuum designed to retain dust (high efficiency particle filter) should be used. Materials in the Library are relatively clean. No regular dusting is done in the Library due to the lack of staff time; vacuuming is done

on an as-needed basis by Maintenance. In the curatorial storage facility, the hallway is cleaned weekly, and the storage rooms bimonthly. None of the open shelves in the storage room or metals room have dust covers.

The HECP is lightly dusted on a regular basis by both the Museum Specialist and a volunteer who has received specific instructions from the Museum Specialist. Maintenance is responsible for maintaining the hallway and cleaning the plexiglass barriers. Changing the HVAC filters is also the responsibility of Maintenance, but is not performed regularly (monthly or more often as warranted). The rooms are not fully sealed against dust or pests; holes for wiring and piping are not sealed, gaps exist under doors from storage rooms to exhibit rooms, and there is an open hole in the wall between the Radio and HECP rooms. HVAC filters have been placed over the ventilation slats in the original doors as a dust control measure.

According to the Museum Specialist, filters for the HVAC systems in the HECP and other areas are not cleaned or changed regularly. In the Preventive Conservation Plan, it is recommended that HVAC filters be changed once every four months, more regularly in the fall due to pollen, and that the coils be cleaned twice a year and anti-freeze added annually in October. Maintenance staff now performs this function as needed.

Recommendations

1. Educate all park staff who give tours at Fort Sumter as to the importance of keeping the light levels low on the flags. It is recommended the SERO Curator be brought in for a short seminar for park staff on curatorial sensitivity. Topics should include regular maintenance of HVAC filters, HVAC settings, maintenance of low lighting levels, and cleaning procedures. Also mount an explanation sheet inside the lighting control box in addition to removing the rheostat control knobs. Park staff should investigate the use of lower wattage bulbs for use with the flags as another means of controlling the lighting. **Ongoing, include with initial orientation package and training.**
2. Purchase an ultraviolet light meter, and establish an annual monitoring program. Light levels should be monitored to check all new temporary exhibits, to check the efficacy of ultraviolet filter sleeves, to check all replacement light bulbs, etc. This should be done in conjunction with an annual visual inspection of all ultraviolet filters. Refer to *Tools of the Trade* for equipment. **Light meter has been purchased, monitoring program to be developed.**
3. Based upon light readings obtained, re-examine the lighting of the Fort Sumter exhibits, and determine new settings as needed. Examine the use of lower wattage bulbs and the selective removal of some spot light as means of lowering light levels. Once new settings have been established, produce an SOP explaining the settings needed and why low light levels are so important to the longevity of the objects on display; this should be distributed to Maintenance and Interpretation staff, and a copy left in the lighting control box. **One to two years.**
4. Lower the light levels in the HECP furnished rooms, particularly the Duty Officer's Room. This may be accomplished by replacing existing bulbs with lower wattage bulbs and/or selectively removing some bulbs. If the Historic Furnishings Plan is reviewed, consideration should be given to light levels and the use of reproductions, particularly in the Observation and Signal Rooms. **Completed.**
5. Purchase more dataloggers so that all spaces with curatorial objects are fully monitored. This is especially important given the large size and widely distributed nature of the park's collections, making weekly downloading difficult. Existing digital devices may be used in specific monitoring programs, such as in the metals room, or inside specific locations, such as museum cabinets with textiles or Fort Sumter museum cases. All furnished rooms in the HECP need to be monitored, particularly given the mildew issue in the hallway, and the Library also should be monitored. **Additional data loggers purchased, monitoring program needs to be established. One to two years.**

6. Annotate the hygrothermograph and datalogger charts in greater detail to explain the changes in patterns recorded. This may include noting periods of high visitation or weather events such as rain, cold fronts, etc. Plot the daily and weekly recorded highs and lows for all recording stations as well. These resulting graphs may show regular patterns in the exhibits, and in particular storage environments, which then may be mitigated by proactive changes in HVAC settings, use of dehumidifiers, etc. Also, the times of entry into the metals room need to be recorded and annotated onto the charts for a year, to determine the effects, if any, of opening and use of the facilities on relative humidity control. **One to two years.**
7. Place an accurate monitoring device within the cabinets housing textiles to determine the true relative humidity levels. If too low, conditioned silica gel to maintain a higher relative humidity level should be placed in the cabinet. Monitoring devices should be placed in cabinets containing metal objects, again to accurately determine relative humidity levels. Refer to the *Museum Handbook*, Part I, Appendix I, Section E, for how to use silica gel to create lower relative humidity microclimates. **One to two years.**
8. Place desiccant silica gel in museum cabinets storing metal objects in the storage room if these objects are not relocated to the metals room in the immediate future. Again, refer to the *Museum Handbook*, Part I, Appendix I, Section E. **One year.**
9. Develop a monitoring program to determine if microclimates are present in back areas of the metals room, such as behind large artillery shells near the floor. If so, install fans to increase air circulation and eliminate microclimates. Continue to work with SERO engineers to ensure the maintenance of the 35% relative humidity set point. **One to two years.**
10. Begin a comprehensive effort to determine any and all sources of moisture infiltration into the curatorial storage facility. Possible sources include uncovered electrical outlets, unsealed gaps between the walls and the floor slab, improper or damaged vapor barriers in the floor slab, walls and or ceiling, and improperly functioning HVAC units. Once the source or sources are identified, they need to be effectively sealed. Contact SERO staff for support. **Complete.**
11. Repair the back exit door to the Fort Sumter museum to eliminate water intrusions during storms. Consult with Maintenance as to solutions that do not negatively impact the historic fabric of the building or setting. Repair existing water damage. **Completed.**
12. Ensure that the impact of large numbers of visitors on the use of the Fort Sumter museum are included in the visitor capacity study to be performed. Visitor use will impact the museum's climate and HVAC system(s), and may indicate that changes in the HVAC design are in order to handle large visitor loads. **Completed.**
13. Block the hole in the wall between the Radio and HECP Rooms. This should eliminate air and humidity infiltration, and block a potential ingress point of pests. **One year.**
14. Investigate with maintenance the feasibility of caulking holes, eliminating leaks and painting over water leak stains in the HECP furnished rooms. This should assist with pest maintenance, mitigate sources of humidity, and improve the appearances of the stained areas. Given the convoluted construction of the building, eliminating the leaks may be a time-consuming task. Also, attempt to curb the influx of ants in the Observation Room. Investigate the use of boric acid in the HECP furnished rooms as an insect preventative. **Ongoing.**
15. As a precautionary measure, post a sign in the Library prohibiting all food and drinks. This may be accomplished by the current Library volunteers. **Completed.**

16. Place pest traps in the Library, behind the Fort Moultrie Visitor Center exhibit cases, in the Fort Sumter exhibits, and the furnished rooms and Living History storage room in the HECP. Date all traps so that they can be replaced in a timely fashion. Initiate a weekly pest log, recording what pests are trapped where and the number caught. Type and frequency information is crucial for detecting widespread problems or incipient infestations. Train park staff and volunteers to assist in checking traps weekly, particularly rangers on duty at Fort Sumter. Purchase a small, hand-held atomizer appropriate for use in museum areas for applying boric acid. Develop a park IPM program, and then integrate the revised museum pest monitoring. When materials are removed from the park files in the administration building and especially from record boxes in C230, they should be closely inspected for insects and egg casing. **Re-institute IPM Program.**

17. When the warm weather returns, establish a concerted trapping regimen to determine the presence and number of silverfish in the storage facility. All gaskets for the exterior doors need to be examined for gaps and deterioration and sealed as necessary. Fine dustings of boric acid and silica aerogel with an atomizer along all affected floor spaces should assist in reducing the population. An aggressive program is needed to ensure that the park's paper objects are not irreparably damaged. **Re-institute IPM Program.**

18. Place dust covers over open shelving in the storage room. These could be muslin dust covers or plastic sheeting, if microclimates or visibility are desired. Refer to *Conserve O Gram* 4/4, "Creating a Microclimate for Oversized Museum Objects," for guidance. This could be performed by a supervised volunteer. **One year.**

19. HVAC filters for all units should be either thoroughly washed or replaced monthly until the dust and other particulate concentrations are lowered. Then these should be examined monthly, and possibly biweekly during pollen seasons (spring and fall). As funds permit, the curatorial facility HVAC filters need to be replaced with HEPA filters to lower the mold spores in the building. **Completed.**

20. Review and update the existing Housekeeping Program. Include new cleaning regimens for the exhibit and storage spaces, more detailed pest monitoring instructions, regular HVAC filter cleaning and changing, fire and security system descriptions and required maintenance, etc. This document should provide a ready source of museum maintenance for any park staff. [This revision has been accomplished.] **One to three years.**

21. Work with IPM coordinator and implement the park IPM plan. A park located in a sub-tropical climate and the pests that inhabit such a region require an adequately trained individual for park support. Museum specific IPM training is necessary in that many of the pests which are very destructive to museum collections are usually not an issue elsewhere in the park environment, e.g., dermestid beetles. **One to three years.**

CHAPTER 7
MUSEUM SECURITY AND FIRE PROTECTION

(This chapter has been deleted from this version for security purposes.)

CHAPTER 8

PLANNING AND STAFFING

Well organized, documented and managed museum collections are a valuable tool in the management of a park. Archives document the rationale behind past management decisions. Natural history collections document the preservation or degradation of life forms. Photographic collections document the development of the park infrastructure, and history collections provide tangible links with the actual people who influenced that history. All serious research in a park, both cultural and natural, should begin with a review of the information currently in the collection and should end with the depositing of the research results (in the form of a report and, if present, specimens) with the collection manager.

The funding for curatorial projects may come from a variety of sources. In budget preparation, park management should consider all areas of funding when looking at collections care. When the park is competing on a regional basis for funds, a strong justification must be submitted to ensure that needed funds are secured. The CMP will help provide some of the needed justification when park management is submitting requests.

Planning

The NPS requires a series of planning documents for each park to guide its development and operation. Collection management activities must be integrated into each level of planning to establish them as legitimate and recognized park functions, based on the mandate of the park's enabling legislation and the general NPS legislative authority to collect and preserve objects.

- General Management Plan

The 1980 General Management Plan (GMP) is currently under revision by the NPS Southeast Regional Office (SERO) planning division; its completion is anticipated in the next one to two years. The GMP provides long-range strategies for addressing identified issues, strategies to preserve and manage park resources, and strategies to provide for the interpretation and use of park resources.

One of the main issues addressed in the GMP is revising and guiding the long-range interpretive plan for telling the park's story; the goal is to present a more holistic, unified, integrated and comprehensive story of all the park's elements for the greater story of the history of coastal defense. Replacing the current Fort Moultrie Visitor Center exhibits is advocated as part of this interpretive shift; the necessity for the new exhibits to meet Harpers Ferry Center standards is included.

The scope and basic importance of the museum collection as a park resource is addressed, as are the needs for museum program planning documents such as a Collection Storage Plan, a Scope of Collections Statement and a revised Collection Management Plan. Unfortunately, no direct mention is made of the long-term conservation needs of the museum collection; the importance of library and archival materials, and their roles in managing and protecting park resources, are not addressed. The needs and values of these collections should be incorporated into future revisions of the GMP.

- Statement for Management

The Statement for Management (SFM), as a planning tool, is gradually being preempted by GPRA (Government Performance and Results Act) requirements (see below). Consequently, SFM's are not being

updated as frequently as in years past. The most recent SFM for the park, approved in 1995, discusses numerous times the lack of adequate curatorial storage space and its negative impact on the park's museum collection. Completion of the new curatorial storage facility has alleviated these impacts. However, replacing the inadequate Fort Moultrie Visitor Center exhibits is advocated for FY1996; due to funding restraints, this is still an on-going issue. However, the discussion of "archival research" is misleading; more appropriately this should have been termed "historical research." None of the information discussed in the SFM as having been generated by this research is particularly archival, nor does it apply to or reflect the park's archival collections. If the park continues to update the SFM, the need for a proper park archives and the benefits it would provide to park and outside researchers should be addressed. Otherwise these needs should be addressed via GPRA.

- Resource Management Plan

Current approved Resource Management Plan (RMP) Statements include requests for a Collection Management Plan (FOSU-C-011, priority 12), a Collection Storage Plan (FOSU-C-056, priority 17), updating the Scope of Collection Statement (FOSU-C-057, priority 21), and Acquisition of Curatorial Equipment (FOSU-C-033, priority 19). There are also project statements submitted for the photographing of the remaining collection objects in storage and on exhibit, installing fire suppression equipment in structures housing museum objects, conserving the eleven Parrott rifled guns at Fort Sumter, allocating FTE for a full-time curator's position, establishing climate control for the HECP, and rehabilitating the Fort Moultrie exhibits. For the large projects necessary at the park, project statements must be in place for the allocation of funding.

There are a number of current RMP project statement that will be obviated in FY1998, such as a Collection Management Plan (FOSU-C-011), updating Scope of Collection Statement (FOSU-C-057), develop/install security system at HECP (FOSU-C-003), and the cataloging of the USC-Stanley South collection (FOSU-C-074). Progress is being made towards implementing recommendations in the fire and security survey (FOSU-C-032) and obtaining curatorial equipment (FOSU-C-033). Many of the on-going projects discussed in this CMP are represented by RMP project statements; the only projects mentioned by park staff that is not represented is the establishment of a formal park archives and replacement of the Fort Moultrie Visitor Center exhibits.

This was current at time of report, however this information is outdated as of the 2002 revision. New planning tools are now used to justify and fund projects.

- Interpretive Prospectus

The Interpretive Prospectus has been replaced with the Comprehensive Interpretive Plan (including the Long-Range Interpretive Plan) as the planning document guiding park interpretive themes and goals. However, as the GMP has been under revision and no major changes have occurred within the park, such as new park holdings, to radically change the interpretive period or emphasis of the park, general interpretive guidance has been incorporated into the GMP. The Interpretive Plan (not reviewed here) was generated c.1980, and is not being adhered to if the Furnishings Plan is an indicator (furnishings stipulated for the Message Center Room). It is suggested a review of the interpretive goals and current conditions and interpretation of the HECP be made, to determine if a new guiding planning document (LRIP) is in order for this installation. The only mention made in the GMP regarding the HECP is to follow the extant Historic Furnishings Plan. Issues that should be considered include replacing existing signs with more professional, informative ones, determining what rooms should be interpreted and the most appropriate way to do so, conducting further research to address more fully the role and function of the HECP, improving methods of displaying objects and considering the possible use of reproductions, methods to improve the maintenance or appearance of the facility, etc.

New Long Range Interpretive Plans are currently being developed.

- GPRA

This is the first year for parks to conduct a self-evaluation under GPRA, the Government Performance and Results Act; the 1997 draft is reviewed here. GPRA is designed so that the evaluation of a park's museum program is by the correction of deficiencies described in the Inspection Checklist.

Park staff are to be commended for forthrightly stating the importance, values and needs of the archives and museum collections. It discusses lack of funding as an obstacle to very needed object conservation treatments and improved exhibit conditions treatment, and the need for the incipient catalog and accession documentation project. Unfortunately the need for a full-time curatorial position is not specifically addressed; the general lack of park staff is discussed elsewhere in the document. By addressing the actual needs of the collection, assistance and funding can be justified and real progress made on protecting the park's irreplaceable resources.

Staffing

Staffing for the museum program has been supported in the past at the near-minimum level required to operate, which has been a Museum Specialist (GS-9) spending half of her time supporting the park's interpretation staff. Until the beginning of FY1998, this schedule was arranged so that she spent from October until March performing Interpretation duties, and not until April did she perform any museum duties. This meant that many tasks which require constant diligent attention, such as object storage conditions, housekeeping needs, pest monitoring, object and collection accessioning, etc., were not performed for six months of the year. As of October 1997, the Museum Specialist's schedule allows for interpretive and museum duties to be performed weekly. The need for a full time professional in this position has been continually recommended in park planning documents, including the park's American Association of Museum's accreditation, and the CCS and the Fire and Security Survey.

The Museum Specialist is fortunate to currently receive assistance from three volunteers, who each work approximately one afternoon to one day a week. The library (containing reports that should be transferred to the archives) has been under the supervision of the park Historian, although responsibility for an archives, as part of the museum collection, is the responsibility of the Museum Specialist. The two volunteers currently working on the Library collection are supervised by the Historian. The museum volunteers have assisted or are assisting with photographing the collection, conducting the annual inventory of museum objects, weather stripping and weekly dusting of HECP furnished rooms, moving the collection to the new facility, drawing exhibit schematics, and correcting catalog record registration data.

The problem of a museum professional responsible for non-curatorial duties and a far-flung collection is not an isolated problem in the NPS. The Service has been struggling with funding limitations for staffing for many years, while the general work load increases. The argument needs to be made that museum curation, including the archives, represents a long-term commitment to resource protection that justifies a full-time, in practice as well as on paper, curator. To this end, the park has submitted an RMP project statement requesting a 0.5 FTE to make the museum specialist full time (FOSU-C-015, priority 8). Another interim measure the park can take is to assign a lower grade employee or seasonal to support the interpretation program during the Museum Specialist's peak fall work load to free her to accomplish annual tasks.

As stated in the Executive Summary, the Museum Specialist position was vacated in August, 1998. The position description is being rewritten and will be under the supervision of the Chief of Resource

Management. This position is expected to be part-time curatorial duties and part-time Resource Management Specialist duties. Until the position was filled, the Historian is tending to curatorial tasks as necessary. Cultural Resources Program Manager was hired in FY99 and tended the museum collection until FY02. A Facility Management Specialist was hired in FY02 and is now responsible for the tending the museum collection.

Recommendations

1. Consider the regular placing of seasonals to “back fill” behind the Museum Specialist as funding permits. This would be particularly beneficial at the end of the summer through the fall, for the Museum Specialist to perform the annual tasks required (Annual Inventory, catalog card submission, etc.). Also, assign more volunteers (if interested) to assist in curatorial projects. **Irrelevant due to new staffing.**
2. Submit updated RMP project statements to accommodate completed projects and to initiate an archives project to arrange and catalog in the park’s archives. Upgrade the priority of the curatorial position once the resource management position has been professionalized. **Completed.**
3. Consider re-evaluating the current interpretation strategy for the HECF (and by extension Fort Moultrie) to determine if an LRIP is needed. Problems with the furnishings plan functioning as a planning document are discussed above. In the course of this evaluation, park staff may wish to consider the applicability of a Historic Structures Report on the building(s) as well, as there are still structural unknowns to the building. An LRIP may be produced by either Harpers Ferry Center or by SERO staff. **LRIP In-Progress/ Furnishing plan still needs to be evaluated.**
4. Include the importance of conservation of the museum collection and the need for a formal park archives in the next revision of the GMP. Specifically state the importance of a full-time curatorial position to the museum program in the next GPRA update, as well as the need to replace the Fort Moultrie Visitor Center exhibits and establish a formal park archives. **One to five years.**

APPENDIX I
LIGHT, TEMPERATURE AND RELATIVE HUMIDITY
MEASUREMENT

APPENDIX II

COPIES OF HYGROTHERMOGRAPH CHARTS
AND OTHER TABLES

APPENDIX III

SUMMARY - MARCH 1998
FORT SUMTER PARROTT GUN
ELECTROLYSIS TREATMENT PROJECT

APPENDIX IV

" Methods of Conserving Underwater Archaeological Material Culture"

Course Reading for

Anth 605 " Conservation of Cultural Resources I"

by

Donny L. Hamilton, Ph.D.

Head, Nautical Archaeology Program

Texas A&M University

From File 10, " Iron Conservation" :

Vats

A wide variety of containers can be used in an electrolytic setup. Many kinds of nonconductive vats of various caustic and acid resistant plastics such as polyvinyl chloride (PVC), polypropylene (PP) and polyethylene (PE) are also widely used....

In addition to nonconducting containers, conducting mild steel vats have a definite place in electrolyte cleaning. The metal vat serves as all or part of the anode and may be substituted for any of the electrolytic setups described in a section which follows. As an example of what can be done, we have constructed a two piece 15 footlong mild steel vat designed to be used to clean anchors and other very large specimens. This " T" shaped vat is constructed of two parts, the stem and the cross, each of which is open at one end. When the parts are joined, the vat is used to clean anchors with auxiliary sheets of expanded mild steel near the top surface to achieve a better distribution of current. Separated, the two are employed to clean an assortment of large iron artifacts. After all of these objects were cleaned, the two vats were bolted together, placed on a " T" arrangement of stoves to rinse the guns, other breechblocks and an anchor in alternate boiling cooling deionized water. The water was drained and replaced with microcrystalline wax for the final sealant. It was not necessary to dry the artifacts before heating up the wax, for the temperature of the wax is taken to over 300EF which is well above the boiling point of water; thus all residual moisture is vaporized in the wax impregnation step.

Mild steel vats can be constructed in various gauges and are surprisingly durable and versatile, even in the lighter gauges. However, for maximum life, use a gauge that provides the strength required, and does not increase the weight beyond your ability to handle it. Mild steel 55 gallon drums, cut lengthwise or in half, make readily available, cheap vats which can be employed in any of the described setup alternatives in combination with auxiliary anodes to assure a more even distribution of current. Metal vats have a distinct advantage over plastic in that all stages of the conservation process can be carried out in them. This is especially advantageous for very large pieces, where it is not economically feasible to have different vats for electrolysis, rinsing/dehydration and wax impregnation.

For large artifacts, such as anchors, cannon, and many other artifacts, welded mild steel vats work quite well. They can be constructed very economically, and will last for years. My laboratory has several welded mild steel vats that have been in use for over 10 years with only minor repair of minor leaks. Several anchors and cannons have been treated in them over the years, and in every instance the mild steel vat was used as the anode. In contrast, North (1987:225) states, "If mild steel tanks are being used on no account should these be made the anode, in the presence of Cl^- ions, this causes corrosion particularly at weld lines and bends in the metal." I agree that when corrosion takes place it is going to be at the stress points such as weld seams and bends. After about 6 years, one welded mild steel vat, developed a series of leaks along the seams. I repaired it easily several times, and eventually gave it to another lab, who continued to use it for several more years. I am presently using several welded mild steel vats that are more than 10 years old. Considering the cost of acquiring a comparable vat made of stainless steel (which has the same problem as mild steel in the presence of Cl^- ions, as discussed above under anode material) or of even various plastic vats, and rubberized liners, welded metal vats are clearly the better choice. In my opinion, if a mild steel vat self destructs in 10 years from using it as the anode, it can be easily replaced many times and still save money over the alternatives. I can only speak from experience and I have been successfully using welded mild steel vats as the container and as the anode for nearly 20 years with great success and I recommend them to any one looking for a cheap, dependable vat. For the same reason, I also use and recommend to others the use of 55 gallon steel drums or barrels, and even coffee cans or paint cans, for use in electrolysis. Thus North's recommendation should be ignored, but the precautions of not using a sodium carbonate electrolyte and using 5% sodium hydroxide instead of 2% sodium hydroxide for the first 2 or 3 baths when cleaning a large steel object with high chloride content should be taken.

In addition, it is difficult to understand how a metal vat can be isolated from the anodes, and even if it is done, the Cl^- ions are still present which will still attack the metal vat, but if the vat is not hooked up as the anode, it is not anodically passivated which affords it some protection. The recommendation by North is totally disregarded by most conservators responsible for treating large iron artifacts from marine sites.

Care must be taken to insure that the metal anode vats remain passive during electrolysis; otherwise, the metal will go into anodic dissolution and create perforations, which are difficult to repair. This is sometimes difficult when using low current density electrolysis in the presence of high levels of Cl^- ions; however most of the difficulties can be overcome if a 5% sodium hydroxide electrolyte is used until the chloride levels decrease or the current density can be increased to keep the anode positive.

A few comments should be made concerning the safety of using metal vats as the container and the anode. Most direct current power supplies used in electrolytic cleaning operate in a 6 to 12 or 24 to 32 volt range and a 0 to 50 or 0 to 200 amperage range, but the actual voltage utilized is only 3 to 16 volts. At this voltage there is little personal danger in using metal vats. A good rule of thumb is that less than 32 volts is not hazardous because the IR (current resistance) drop in the human body is such that little or no current would pass. Care should be taken, however, to avoid shorting the two terminals of the higher voltage power supplies against each other.

APPENDIX V

GUIDELINES FOR ESTABLISHING A PARK ARCHIVES

The legislative authority for park archival and records management work is as follows: *Records Disposal Act of July 7, 1943*, as amended (44 USC 366-376, 378-380); *Federal Property and Administrative Services Act of 1949*, as amended (44 KUSC 391-401); *Federal Property Management Regulations*, Subchapter B, Archives and Records, Part 101-11, Records Management; *Department of Interior Manual*, Parts 390-384, Records Creation and Disposition; and the *Federal Property Management Regulation*, Subchapter B, Archives and Records. NPS Guidance includes the following: NPS-19, *Records Management Guideline*; NPS-28, *Cultural Resources Management Guideline*, Chapter 9, and the *Museum Handbook*, Part II, Appendix , " Museum Archives and Manuscript Collections."

It is essential that archival documents not be shipped to a Federal Record Center and the National Archives and Records Administration (NARA), and equally essential that official records not be added to the park's archives. Non-active NPS records are to be checked against NPS-19, *Records Management Guideline*. Records such as contracts, completion reports, personnel records, permits, and other auditing, accounting and legal reporting documents required by the government are considered " official records" (see below), and are to be retired to the Federal Records Center. Non-official records are to be checked against the park's Scope of Collection Statement (SOCS) and evaluated as described below.

Copies or duplicates of official records, called sub-official or non-official records, may be retained. Resource management materials that should be kept include environmental assessments, historic structure reports, historic furnishing reports, master plans, etc. Copies of materials generated by the Superintendent, Interpretation staff, architects, etc., should be evaluated against the SOCS for inclusion and retained if it fits within the SOCS.

Occasionally, it is not clear whether materials belong in the park archives or its library. Publications that are not original to the site (not NPS generated) or are not rare belong in the library. In smaller parks, rare books are housed in the museum collections for security (greater property control) and preservation. Rare books and those original to the site may also be cataloged into the library collection. For a definition of a rare book, see *Conserve O Gram* 19/2 " Care and Security of Rare Books" and 19/3 " Use and Handling of Rare Books." Published resource management report copies may appear in both the museum (archives) and library collections.

How to determine if the documents belong within the park's archives collection:

- 1) Check NPS-19, *Records Management Guideline*, to determine if the documents are official or non-official. If official, the documents may not be added to the archives.
- 2) Determine if the material is site-related to the park, or falls within the scope of study as outlined by the park's establishing legislation. If there is no relation to the site or those interpretation areas designated by the legislation, the material may not be included in the archives or library collection.
- 3) Determine if the material fits within the park's SOCS. If not, it may not be incorporated.
- 4) Check the collection against the *Museum Handbook*, Part II, Appendix D, "Evaluation and Appraisal" section. If the material has no informational, evidential, intrinsic or associational value, the collection should not be added to the archives. (See below for definitions).
- 5) Determine if the collection has a "mortgage." A mortgage is a condition of the collection which means a substantial investment (such as being very deteriorated, disordered, lacking in essential collection components) in staff time to maintain or in conservation funds.
- 6) Does the collection have restrictions? Can clear ownership and copyright be obtained for the material? If clear copyright cannot be obtained (from a donor), park staff should make copies and avoid accepting the material. Similarly, if the park cannot obtain model release forms for images (photographs), then great care must be taken by the staff not to provide permission to publish the images. Can the park obtain interview release forms for oral or video histories? If not, the materials may not be reproduced or published and should only be added to the collection if it is of paramount importance. If a donor insists of placing access restrictions on the material, talk to an NPS solicitor, or do not accept the collection.

If a collection is non-official, site-related, and relevant to the park's SOCS, it should be appraised. Archival appraisal involves determining a collection's administrative, artifactual, associational, evidential, informational and monetary value to the park.

Administrative value refers to the collection's usefulness for park management, as in the case of resource management records. Artifactual value refers to the collection's intrinsic value as a unique or rare object of material culture or as an art object, and is often related to qualities that make for good exhibit value.

Associational value refers to the collection's creation or ownership by eminent site-related individuals or groups, or its relationship to famous site-associated events. Evidential value refers to the collection's ability to serve as legal or historical proof of an activity or event because of the presence of authenticated original documents, such as wills or marriage certificates.

Informational value refers to the subject content of the

collections, such as the entities, locales, objects, events, projects and processes documented. Often, in the NPS, collections illustrate how the park was created, developed or operated over time, including documentation on the park activities, events, personnel, programs and resources. Monetary value refers to the dollar value placed upon rare or collectible archival documents and manuscripts, such as autographed letters or photographic prints. Monetary value is often affected by associational, artifactual and informational value.

Most collections exhibit all of these values in varying proportions, as well as containing materials of no currently perceived value. When evaluating archival materials, consider potential future uses of the collection. Collections with high associational, artifactual or informational value are most useful for exhibits, which high informational value alone will make a collection valuable for research or publications.

I. Official Records:

Official records are collections of documentary materials created by the NPS to document the creation, development, organization, functions, policies, decisions, procedures, operations, or their routine activities of the NPS. They include audit records, budgets, central park correspondence files, contracting records, financial records, law enforcement records, legal records, museum records, permits, personnel records, etc. These records are produced to meet a federal requirement of tracking or record-keeping. Official records are made or received by NPS officials and staff as a part of transacting business, and preserved as evidence of the office's actions or functions or due to the record's informational value.

Official records may be either active, in which case they are retained at a park, or inactive, in which case they are appraised via NARA and NPS-19 retention schedules, and either disposed of, or sent to a federal record center. Official records needed for long-term active use, such as museum records, must be certified by the Archivist of the United States.

The original copy of an official federal record is the "record" copy, while any duplicate or variant record (which NARA does not collect) may be called "sub-official," "non-official," or "non-record." Official federal records are managed using the agency's retention schedule (NPS-19) and NARA.

By law, NARA has responsibility for all the official records of the federal government.

Some active records, such as museum records (see below), are listed as being permanently retained by a park with their collections. Official records do not include documents and collections created for the purposes of reference or exhibition.

Museum records are official records generated by the museum property system to manage museum property. They include accession, catalog, inventory, and loan documents. These records are appraised through NPS record schedule procedures and are then certified to the Archivist of the United States as necessary for current NPS business. They are then maintained in the park as active official records for which the NPS is accountable to the NARA.

II. Non-official Records:

NPS non-official records include all NPS documentation that was created for purposes of reference or exhibition (44 USC 3301) as opposed to legally mandated documentation (e.g., audits, budgets, permit-granting, law enforcement, personnel records). These non-official collections include sub-official records, personal papers, acquired organizational archives (non-NPS entities related to the site, such as friend's groups), and resource management records. Only non-official archival and manuscript collections that fit a park's SOCS may be added to the museum (archives) collection. These non-official documents share certain characteristics. They are active museum, library reference, or exhibition collections related to park resources, holdings, and/or history. These materials are essential for park resource management and interpretation, such as archeological site documentation, or aerial photographs used to record changes following a fire.

Museum archival and manuscript collections are essential to the ongoing work of the park s and are used by park architects, archeologists, curators, historians, interpreters, landscape architects, scientists, and other scholars and staff. These collections provide vital evidence of site-related historic and scientific activities, events, resources, groups (e.g., cooperating associations), and individuals.

Museum archival and manuscript collections may also illustrate the evolution of the site during its historic period.

These non-official materials are critical to the understanding and management of cultural and natural resources. They provide essential historical detail for exhibits, films, publications, reports and studies. These collections may also be acquired from non-federal sources or may be generated in the course of conducting federal business (e.g., most resource management records and associated records).

Museum archival and manuscript collections include the following types of non-official materials:

1. Personal Papers:

Personal papers are the documents created or accumulated during a lifetime by an individual or family,. They are organic, non-official collections, functioning as the archives or an individual or family. Personal papers usually have an intact provenance and original order, which must be maintained. Parks collection the personal papers of individuals associated with the park, such as founding fathers, formative staff, or eminent individuals linked to the history of the site.

2. Organizational Archives (Acquired Archives):

Organizational archives, also known as acquired archives, are organic, non-official collections created by a site-associated, non-NPS organization (e.g., a business, club, church, or other group) as a routine part of doing business. They may include correspondence, legal and financial records, and other forms of documentation. NPS staff must maintain their provenance and original order.

3. Assembled Manuscript Collections:

Some archival collections are accumulations of non-official documents assembled from multiple sources by collectors. Thus, the different documents in the collection are generally unrelated by their circumstances of creation as items. Instead, they are related by subject matter, or by a specific document process or format (e.g., posters), or by the signature of a single person. All of these collections are known as assembled or artificial manuscript collections. Assembled collections may be added to a park's museum collection if they fit in with the park's SOCS and have a relationship to the site. Since assembled collections have a shared context provided by their history of ownership and assemblage, curators should maintain assembled materials from a single source as discrete collections.

4. Resource Management Records:

Resource management records are defined in the *Department of the Interior Manual* (411 DM 1) as non-official documentation "such as site forms, field notes, drawings, maps, photographic slides, negatives, films, video and audio cassette tapes, oral histories, artifact inventories, laboratory reports, computer cards and tapes, computer disks and diskettes, printouts of computerized data, manuscripts, and reports made or acquired by the Federal Government to record information on cultural and natural resources for the purposes of reference or exhibition and for preservation of the Nation's natural and cultural heritage."

Resource management records are vital non-official documents, and may be added to the archives if they fit the SOCS and are site-related. Copies or duplicates of these materials may also appear in the park's library or central file. These records are generated by NPS staff, contractors, cooperating associations and other institutions. The records provide vital "baseline data" for the management of park resources during and after project completion. They document the entire spectrum of cultural and natural resources projects, including those related to cultural landscape research and maintenance, historic furnishings, historic structures, natural resources, ruins maintenance, and science in general.

Archival collections of resource management materials may or may not be specifically associated with other museum property. They also may or may not have been produced in the field. If associated with other museum property (objects and artifacts) they are also known as "associated records."

Associated records are a subset of resource management records. They are referred to in the *Department of the Interior Manual* (411 DM 1) as "documentation generated by collecting and analyzing artifacts, specimens, or other resources that are or subsequently may be designated as museum property, such as site forms, field notes, drawings, maps, photographs, films, video tapes and audio tapes, oral histories, artifact inventories, laboratory reports, computer cards and tapes, computer disks and diskettes, printouts of computerized data, manuscripts, and reports. These records are 'associated' with the objects and specimens generated during these activities." They are needed to effectively manage museum property collections and should be

maintained as part of those collections. See also the definition in 36 CFR, part 79.

5. Sub-official Records:

These records are desk file copies or duplicates of documents, and are useful for reference, administrative histories, interpretation, research, and other informational purposes. As defined by NPS-28, *Cultural Resources Management Guideline*, these documents are not considered necessary for permanent retention by the National Archives and Records Administration, which instead retains the originals of these documents.

Sub-official records include desk files of individuals, subject files maintained for internal use, copies of internal policies, reference files of park ephemera, and copies of reports such as the Superintendent's reports. Sub-official records also include lists of past employees, as well as publications of the park and cooperating associations. In certain instances, such copies may be retained to provide further explanation or interpretation of policy, practice, events or resources at the park.

APPENDIX VI

SELECTED BOX AND FOLDER LIST OF C230 RECORDS

16 Boxes of Appendix F (City of Charleston Aquarium), 1.5-2.0 cu.ft. boxes

1 Box - T&A Reports (1.0 cu.ft.)

2 Boxes - Park Files (1.0 cu.ft. each):

Includes: Section 106, Surplus Property, Statements for Management 1975-1986, Land Protection Plan 1982-1989, asbestos removal Snee Farm, Gifts/Loans of Cannons 1954-1989, Case Incidents, Cyclic Maintenance 1978-1988, Tort Claims, Administrative History SESEF, Solar Hot Water Heater, FOSU Dock Replacement.

1 Box - PX89/90 (1.5-2.0 cu.ft.)

11 Rolls of City of Charleston Aquarium plans

1 Box - FY94 Payroll, Imprest, TPD's (1.0 cu.ft.)

2 Boxes - Reading Files (1.0 cu.ft. each)

Blue, yellow, pink copies; dates 1980-1989 and 1975, 1977-1979, 1990-1993.

9 Boxes - City of Charleston Aquarium related ? (eight boxes are 1 cu.ft. each, one box is 1.5-2.0 cu.ft.)

Along Back Wall, in order from left to right:

Box 1 - Unlabeled (2.0 cu.ft.)

Includes: GMP, Master Plan 1973, FOSU Wells, Statement for Management, Statement for Interpretation

Box 2 - "Tour Boat Full" (2.0 cu.ft.): all tour boat related

Box 3 - "Admin History Flag Donations" (2.0 cu.ft.)

Includes A52 "Ft. Sumter Flag Committee: 1983-19895, case incident reports, annual reports to 1984, Pest and Weed Control, Historic Resource Management Plan 1977, Historic Structures 1968-1976, staff meetings, news releases.

Box 4 - "File Box Contents: F16 Bills of Collection & Deposit" (2.0 cu.ft.): all fiscal

Box 5 - "Full Concessions Planning General Mngt." (2.0 cu.ft.)

Includes case incident reports, energy conservation, Encroachments, Holdings (other than Federal), Master Plans, concessions, interpretive planning, contracts, tours, Sullivan's Island matters.

Box 6 - "Personnel Files" (2.0 cu.ft.): all personnel

Box 7 - "Outdated Files Box 2" (2.0 cu.ft.)

C230 Box Inventory, con't:

Includes contracts, including construction of FOMO and FOSU
floating dock, bluelines

Box 8 - "Impress" (2.0 cu.ft.): all fiscal

Box 9 - "T&A;s and LES's" (1.0 cu.ft.): all personnel and fiscal

Box 10 - "Outdated Files Box 1" (2.0 cu.ft.): all contracts

Box 11 - Unlabeled (1.0 cu.ft.): Training, safety, and Visitor Services
Handbook.

Box 12 - Untitled (1.0 cu.f.t)

Includes mail orders, correspondence, auditorium roof, FOMO roof
repairs

Box 13 - Fee Collection Journal Tapes

Note:

cu.ft. - cubic foot/feet

FOSU - Fort Sumter

FOMO - Fort Moultrie